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The Control of Animal Diseases

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I DO not know of any class of business men whose friendship and confidence is more coveted than that of bankers. Generally, government employes have important business connection with the butcher, the grocer, the clothier, and the coal man, but a very limited acquaintance with the banker. Therefore, it is with more than ordinary pleasure that I avail myself of the opportunity of meeting the representatives of the Agricultural Committee of the American Bankers' Association. Although my personal business relations with the banker may be very much restricted, officially I have had an opportunity to become acquainted with his activities in various localities and from these experiences I am able to appreciate more fully the relation of the banker to the molding of public sentiment as well as to the industry and thrift of the community in which he lives and works.

The Bankers' Part in Eradicating Foot-and-Mouth Disease

In 1914 this country was visited by foot-and-mouth disease, the most dreaded of animal plagues. This widespread outbreak was the most serious and extensive that has occurred in this country. It appeared first in a densely populated live-stock community in the Central West and spread from there with alarming rapidity. Within thirty days after the disease was diagnosed affected herds were found in 17 states and the District of Columbia. It had appeared in the Chicago stockyards, our greatest live-stock market, also on the ranches of Kansas and Montana, and had been carried to both the Atlantic and Pacific coasts. The country was confronted with an alarming situation; the live-stock and allied industries were threatened with disaster; the people in some infected communities were ignorant or skeptical concerning the disease, as it was new to them, and they chafed under the restraint of the rigid quarantine to which they were not accustomed.

Public sentiment wavered as to the proper procedure in the circumstances, and the drastic measures adopted by the Department to eradicate the disease were opposed in some localities, even in the courts. It may be stated now, since it is all past and our country is free from the scourge, that at one time in the height of the outbreak, those in Washington who were directing the eradication work became almost discouraged. But before accepting defeat and resorting to the milder, less effective measures employed in those countries that attempt to control the disease but have been unable to stamp it out, it was determined as a last resort to ask the active support and assistance of the men of the country whose business interests were directly or indirect-

*An address before a joint conference of the American Bankers' Association and the State Bankers' Association held at Washington, D. C.

ly connected with agricultural and the live-stock industry.

It is needless to say that the bankers comprehended the situation quickly and responded to the call nobly and effectively. They published and distributed circulars explaining the character of the disease, the necessity of active co-operation on the part of all concerned to eradicate it and the results that would follow failure. They addressed public meetings, they wrote many letters and personally interviewed recalcitrant live-stock owners. They not only used their influence in shaping public sentiment, stimulating co-operation and directing community activities, but they also aided in the work by financing certain of the operations in their respective neighborhoods.

Eradication Complete and Thorough

The disease was completely eradicated in a shorter time than had been predicted and at a relatively small cost. The suppression of this extensive outbreak was an achievement in animal-disease control that has not been paralleled in any country. It is doubtful whether the 1914-15 outbreak of foot-and-mouth disease would have been eradicated before now had it not been for the moral support and active co-operation of the bankers at a critical time when success seemed to be receding beyond our reach. Certainly it could not have been accomplished had the bankers opposed the Department's policy for combating the outbreak.

Thus I became better acquainted with the banker, thus I came to realize more fully his influence and power in molding public sentiment, his opportunities for intelligently directing industry into the most useful channels, and thus I came to appreciate more fully that the banker is the center of business intelligence in his community and a very important connecting link between the bureau I represent and the farmer and live-stock producer.

Similar assistance has been rendered by a large number of bankers in our work of tick eradication, hog-cholera control, scabies eradication and other activities to which I will refer later, and it gives me much pleasure to express publicly my appreciation of the support so unstintingly given by bankers in our endeavors to reduce the perils of animal industry.

Live-Stock Production and Conservation

It becomes essential for the future welfare of our country that our herds be improved, not only that we may meet our present-day problems, but that we may be in readiness to meet the demands that are inevitable after the Treaty of Peace has been signed and all embargoes removed. To this end the Bureau of Animal Industry has been bending its energies, first in encouraging the live-stock raiser to increase his herds and flocks and their products along intelligent lines, and secondly, in assisting him to conserve his animals after they have been produced and by keeping them from being decimated by disease.

The campaigns for increased production have yielded especially fruitful results with regard to pigs and poultry. Indications are that the increase of 15 per cent in pork production for 1918 over 1917, as asked for by the Food Administration, has been realized, at least in weight if not in number of hogs. Poultry also shows a material increase, and enormous quantities of eggs have been preserved by householders in the season of plenty for use in time of scarcity. Efforts have been made also to maintain and increase the output of dairy products by means of more and better cows, better methods and practices, and the extension of the industry.

The continued demand from different states for advisers on specific and complex beef cattle problems resulted a few years ago in the employment of a corps of trained specialists for this purpose. When the beef cattle extension work was first started it was known what should be done, but very little was definitely known as to how it should be done. When these men were first appointed, many different methods and systems were employed in the different states, each conducting the work as seemed most advisable. Each specialist tried to improve upon methods formerly used, until now after the experience of four years, we have plans and methods that can be used almost anywhere with satisfactory results.

Lasting Good Accomplished

At present beef cattle extension specialists are devoting their efforts to the various phases of beef production in 348 counties in nine states. Among the many things which they have done that will undoubtedly result in much lasting good was the bringing into the territory covered by them of

2,848 pure-bred and 53,515 high grade beef cows and heifers and 914 pure-bred bulls. This number of good breeding animals is sufficient to greatly improve in a few years the quality of several thousand head of stock cattle in those sections. They also brought into their territory upward of 175,000 head of cattle from the drouth area of the southwest.

As a means of bringing to the attention of farmers the most desirable methods of feeding, care and management of their beef cattle and having these methods more generally adopted, many feeding demonstrations with practically one hundred thousand cattle were held. Many barns, feeding sheds, stock scales, silos, and feed lots were planned and constructed.

Other lines of work consisted in assisting at cooperative breeders' sales, in dehorning, castrating and judging demonstrations, the organization of community, county and state beef breeders' associations and educational work along general lines. A total of 36,919 people were given specific instruction on the different phases of beef production in their attendance at 363 public meetings.

The extension specialists during the past six months of the present fiscal year were called upon for increased activity in the field, due to the then existing emergency. The work now being done by them, however, is of a different nature from that formerly performed, due largely to a change in the general form of work done by other extension field forces. Formerly the specialists devoted a large part of their time to individual work with farmers. At the present time their work is confined largely to specific and complex beef cattle problems, requiring the thought and attention of a trained specialist. Such is the type of men sought for this special work—men who not only have training along general agricultural lines, but who by practical experience and special training, have qualifications fitting them for this important work. Much of their time is also devoted to working out, in co-operation with other extension forces, a broad, comprehensive program for agricultural development along all lines, with live stock as a foundation. The specialists no longer have time to do individual work alone, due to the demands for their services, but reach an increasingly larger number of people through other extension forces, principally the county agents, with whom they work with the greatest spirit of co-operation. This co-operative arrangement is now being effectively carried out in the various states by means of carefully planned projects which have been generally adopted and put into operation.

Closely interlocked with the campaign for greater production of live stock is the work of controlling and eradicating animal diseases. For many years the Bureau of Animal Industry has been engaged in activities of that character. Since our country entered the war the normal work has been greatly extended and we have redoubled efforts in fighting the maladies which keep down production.

The effect of such control upon increased production will be readily observed by a study of the benefits obtained by the eradication of contagious pleuropneumonia from the United States in 1892, the successful eradication of foot-and-mouth disease in 1902, 1908, and 1915, and by the control of such other expensive animal plagues as Texas fever, scab of cattle and sheep, hog-cholera and dourine.

Losses Largely Preventable

The Secretary of Agriculture has estimated that the direct losses from animal diseases amounted to $212,000,000 in 1914. Most of these losses, probably to the extent of $175,000,000, are preventable. Some diseases may be prevented by the intelligent action of individual farmers, while others must be dealt with through systematic and organized campaigns under government and state direction. Even in the latter class, however, the co-operation of individual stockmen and their banker advisers is necessary. The systematic eradication of animal diseases calls for executive action such as quarantine, inspection, systematic treatment, and the like, but at the same time there must be dissemination of information among those financially interested in live stock, and intelligent application of sanitary methods on the ranch and farm. Measures already taken have succeeded in the last several years in substantially reducing the loss from animal diseases, and there is a good prospect that the continuation of such work will bring about further material reductions within the next few years.

Tick Eradication

The most striking example of what has been and what may be accomplished in the systematic stamping out of animal diseases is the campaign for the eradication of the southern cattle ticks. These parasites, by transmitting a disease known as splenetic or Texas fever, and by keeping the infested cattle in poor condition, are responsible for direct losses estimated at $40,000,000, and for far greater indirect losses. In a little more than ten years the area infested by these ticks has been reduced from 728,565 to 270,036 square miles, the area freed from ticks amounting to 458,529 square miles, or 63 per cent of the whole. This freed territory is nearly equal in extent to the combined areas of Virginia, West Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Alabama, and Mississippi. Last year more than 79,000 square miles were released from quarantine, and by the release of the remainder of South Carolina a wedge of free territory was driven through to the Atlantic Ocean. Indications are that 1919 will surpass that record and witness the clearing of the entire state of Louisiana to the Gulf of Mexico.

The ticks are eradicated by the systematic and repeated dipping of the cattle in an arsenical solution. The cost of eradication has been found to be from 18 to 50 cents per head of cattle, while the increased value of each animal is greatly in excess of this, one inquiry having resulted in an estimated average increase of $9.76 per head. The work is now being prosecuted on a larger scale and with more vigor and general cooperation than ever before, and it is reasonable to expect that more rapid progress will be made within the next few years. The success of this work not only stops the losses caused by the ticks, but enables the country to increase and extend the cattle industry, with increased production of meat and dairy products ,and with great benefit to general agriculture.

Greatest Loss from Hog Cholera

Hog cholera has doubtless caused heavier losses than any other single disease. The annual loss varies greatly from year to year but has been estimated to average $40,000,000. A few years ago, after many years of scientific research, the Bureau of Animal Industry succeeded in preparing a serum which would protect hogs against this disease. Field experiments have demonstrated that this serum gives practically absolute protection to hogs that have not already contracted the malady, while it greatly reduces the losses in herds in which the disease already has appeared. The present methods of control by farm sanitation, quarantine, and the application of antihog-cholera serum have met with marked success in reducing and preventing the disease and in increasing the production of pork.

In three counties in which experimental field work was carried on the loss per hundred was lowered in three years from 28.4 to 1.7, while production was increased by more than 75 per cent. Data compiled by the Department of Agriculture show that the losses from hog cholera in 1914 amounted to $75,000,000, while for the year ending March 31, 1918, they were but $32,000,000, a reduction of about 60 per cent in less than five years. Reports from inspectors indicate that there has been a further reduction since the last estimate. Stated in another way, the country-wide death rate from hog cholera in 1917 was but 42 per 1,000, the lowest in 35 years, and a wonderful contrast to the 144 per 1,000 in 1897 and 118 per 1,000 in 1914.

It would be a mistake, however, to suppose that these results herald the immediate extinction of hog cholera. The immensity of the problem is such that it can be attacked successfully only when the states and local organizations are in a position to co-operate with the federal government. The first and most important steps have been taken already and the rest appears to be largely a matter of time and education.

Sheep and Cattle Scab Losses Reduced

The parasitic diseases known as scabies of sheep and cattle, caused by two species of similar mites, also have been successfully attacked by dipping infested stock in solutions that destroy the parasites but do not injure animals. The work of eradicating these diseases is far advanced and the heavy losses that formerly occurred have been largely eliminated. In fact the last territory infested with cattle scab was released from quarantine on April 15, 1918, and there are only 10 counties in California, 11 counties in Texas, and 3 parishes in Louisiana, that are now under quarantine for sheep scab. These diseases at one time prevailed throughout most of the re-

gion west of the Mississippi River, but have now been restricted to comparatively small areas, and it is probable that before long the eradication will be practically completed.

Tuberculosis Eradication Progressing

Unlike most animal diseases, tuberculosis attacks not only the prosperity, but the health of the country. Some progress has been made in the past in the suppression of this disease by the systematic use of tuberculin in testing dairy herds and by the elimination of the diseased animals, but it is only recently that such work has been taken up in a large way. In co-operation with state authorities and live-stock owners a campaign has been undertaken in 40 states along three lines, namely, the eradication of tuberculosis from herds of pure-bred cattle, the eradication of tuberculosis from circumscribed areas, and the eradication of tuberculosis from swine. In the beginning the efforts are being concentrated on the first project, since the pure-bred herds are the foundation of our breeding stock. A plan which was adopted in December, 1917, by the United States Live Stock Sanitary Association and by representatives of breeders' associations and approved by the Bureau of Animal Industry has been put into operation with the co-operation of a large number of herd owners.

With the consent of owners the herds are tested with tuberculin and any diseased animals found are removed and the premises cleaned and disinfected. Subsequent tests are made at proper intervals. By this means there is being established a list of pure-bred herds from which persons may buy breeding stock with reasonable assurance that it is free from tuberculosis. The first list, giving names of more than 1,000 owners of accredited herds and of herds that have passed one test successfully has been printed and is now being distributed.

It is believed that the development of this plan and the application of other official measures in co-operation with state authorities and with individual cattle owners will succeed in time in diminishing the extent of bovine tuberculosis. Here again, however, the individual breeder can do much to protect himself by having his cattle tested with tuberculin, by disposing of any reacting animals in a proper manner, by sanitary methods as described in the bureau's publications, and by bringing into his herd only such new animals as are known to be free from tuberculosis. Bankers can render valuable assistance by furnishing their moral support to this important movement.

Tuberculosis also affects hogs to a considerable extent, those animals usually contracting it from cattle, either by being fed upon milk containing the germs of tuberculosis or by following tuberculous cattle in the feed lot. Raw skim milk returned from creameries to patrons and fed to pigs is a prolific source of the disease in swine. The danger from milk may be overcome by pasteurization, which should be required at creameries. The farmer, however, can avoid danger by cooking all milk not known to have been pasteurized or to have come from healthy cattle, before feeding it to hogs. The bureau has issued and distributed printed matter which tells farmers how to deal with tuberculosis in hogs.

Contagious Abortion Causes Heavy Losses

Contagious abortion of cattle has existed in this country for a long time. Only in recent years, however, has it become of such an alarming character as to demand the same amount of attention that has been devoted to some of the devastating diseases of a more acute infectious nature, where death could be looked upon with almost certainty. It interferes with breeding and causes the death of unborn calves. Until recent years the affection appeared mainly to involve the dairy herds of the country. The resistance of such animals is more or less impaired as a result of the constant drain upon their systems, the none too sanitary conditions under which such herds are in many instances handled, and the frequent introduction of new animals.

More recently the disease has been reported often as affecting the cattle that are kept under range conditions. Here it appears as an even more menacing problem, for the offspring is depended upon to furnish the entire income derived, and the treatment of individual animals is exceedingly difficult.

The great economic loss caused by contagious abortion has resulted in widespread efforts among investigators to obtain all the facts possible in regard to the various phases of the disease, in order to establish effective control measures. But the diffi-

culties are very great, with the result that, although a great amount of work has been done, further knowledge of the fundamentals of the disease is necessary. Investigational work thus far carried out indicates that the introduction of the disease into abortion-free herds can be prevented far more successfully than its dissemination can be controlled, once the infection has established itself.

The Department of Agriculture has recently issued publications giving information designed to impress upon stock owners the importance of building up their herds by a breeding process, if possible, rather than by purchase, and, in the event of its being necessary to introduce animals from outside sources, to exercise the utmost care in selecting the stock from herds that are free from the disease. Where the disease already exists, control measures based upon sanitation are recommended as having been found most effective in reducing the losses caused by abortion.

Methods of immunization are being extensively investigated by the bureau with the object of obtaining the more effective means of dealing with the situation.

Influenza or Shipping Fever of Horses

Heavy losses of horses have resulted from influenza or shipping fever, especially among animals collected and shipped for war purposes. Since the United States entered the war the bureau has extended its co-operation to the War Department and to state and local authorities at assembling and shipping points with a view to minimizing the losses following exposure to this disease. Horses are inspected for influenza, those found affected segregated, and the barns, stables, corrals, cars, etc., used in handling them are cleaned and disinfected. Sufficient progress has been made to show that the losses resulting from the disease can be greatly reduced.

Other Diseases Being Controlled

The disease known as blackleg destroys cattle in certain parts of the country, always attacking the animals that are the most thrifty and that have been making the most rapid growth. Pure-bred and high-grade cattle are most often victims of its attacks. No satisfactory cure is known, but for many years a most efficient preventive in the form of vaccine has been prepared and distributed to stock owners free of charge by the bureau. The number of doses furnished in this manner lately has averaged about four million annually and the number of valuable young cattle saved in that way reaches into the thousands each year.

In spite of every precaution anthrax seems to be invading new areas of the United States from year to year. All the domestic animals are susceptible to this dangerous disease, but the losses occur mostly among cattle, sheep, horses, and mules. Vaccines have been offered for sale through commercial channels at moderate cost for several years. The Bureau of Animal Industry recently improved the process of vaccinating against anthrax, making the operation successful and protecting the treated animal in a greater proportion of cases than formerly.

Hemorrhagic septicemia, or stockyards fever, is an infectious disease, attended with a very high mortality, which attacks various species of animals, especially cattle, sheep, and swine. It is a septicemia or poisoning of the blood and often runs a short course and causes quick death. It has been recognized in this country for the last twenty years, but the losses have been unusually heavy in many sections of the United States during the last few years. Medical treatment is of little value and it is necessary to resort to precautionary measures. Vaccines are being used with good effect. The bureau has issued publications giving information about the disease and how to prevent it.

The work for the eradication of dourine of horses has been continued with good results. Iowa and Nebraska have been freed from the disease and it has been greatly reduced in North Dakota and Wyoming. Active work is being done in South Dakota, Montana, Arizona, and New Mexico. In the last two states eradication is especially difficult because the infection has spread among horses on Indian reservations. Horses found diseased are destroyed and the bureau pays one-half of the appraised valuation, its share not to exceed $100.

Besides the administrative and field work the Bureau of Animal Industry carries on scientific research work to learn the characteristics of contagious diseases and how to go about eradicating them. At present good progress is being made in working out methods of raising sheep free from stomach worms.

The bureau also supervises vaccines,

serums, and anti-toxins prepared and sold by commercial firms for the treatment of domestic animals, and this official control has removed from the market many worthless and a few dangerous preparations.

In all these ways, through the joint efforts of federal and state agencies and of stockmen generally, and spurred on by the unusual requirements of the present, we are pressing, more vigorously than ever before, our assaults against the enemies that have too long preyed upon our flocks and herds. Recent results give us a vision of a new day in which the American stock raiser, freed from the ravages of some of his foes and with others brought under subjection, can pursue his calling in greater security and increase his contributions toward supplying the growing needs of the world. And in all these activities, the stock owner as well as the Bureau of Animal Industry, has come to rely upon the banker of the community for counsel, co-operation and encouragement.

A Critical Consideration of the Veterinary Training Schools at Camp Greenleaf and Camp Lee During the War

By MAURICE C. HALL, Ph. D., D. V. M., Detroit, Michigan

WHILE in the veterinary training school at Camp Lee, the writer was asked by the other veterinary officers there, exclusive of those attached to the instruction staff, to write a paper discussing the veterinary training schools at Camp Greenleaf and Camp Lee. At the time this request was made, these officers were practically unanimous in the opinion that conditions at the veterinary training school at Lee were distinctly unsatisfactory, and that affairs at the school might have been much better managed. In this paper, the writer wishes to examine the circumstances provoking this dissatisfaction and to present these from the point of view of the hundreds of veterinary officers, who, like himself, spent months in the pursuit of elementary military topics at the two schools. If the writer did not know that he was presenting here the practically unanimous opinion of these veterinary officers, it would be a thankless task to write this. His own time, and services were wasted for over six months, but that is an individual matter that would be crowded out of consideration in the pressure of the more useful and pointed civilian occupation to which he has returned. But when the time and services of hundreds of officers are wasted, it is a matter calling for some consideration.

Sooner or later, we will undoubtedly have presented the points of view and experiences of those who served as officers or in the enlisted personnel in remounts, unit work, hospital, replacement and mobile veterinary section work and in meat inspection at home and abroad, and the veterinary profession at large can ascertain from the whole what was done in the corps during the war and what should be done in the post-bellum reorganization. Something of the sort is necessary if we are to clear the air of the widespread dissatisfaction now existing and secure such an organization and personnel in the veterinary corps as will obtain and warrant the support of the veterinarians of the country.

Apparently the intent of the heads of the veterinary corps at the outset was to give veterinary officers their military training at Camp Greenleaf and to train an enlisted personnel for veterinary units at Camp Lee. Officers for the veterinary units at Camp Lee were to be supplied largely from Camp Greenleaf and were to aid in training the units and then take them overseas. This seems to have been the program until some time in September. About this time the heads of the veterinary training school at Lee began to institute certain features that gradually made the veterinary training school a training school for veterinary officers and ultimately made it, as one infantry officer there put it, in conversation with writer, "a reform school for veterinary officers."

Reasons for Change of Program

The reasons for this change of program at Lee were about as follows:

Officers coming to Lee from Greenleaf from civil life were found in some cases to be indifferent officers from a military standpoint in the opinion of headquarters and the infantry officers of the provisional companies at the veterinary training school. This was not surprising. It would have been surprising had it been otherwise. Veterinarians entered the army largely to put their professional services at the disposal of the government, precisely as physicians did, and with the same right to suppose that they would be so used, and it was a foregone conclusion that some veterinarians would not qualify as military men, any more than medical officers would, and physicians rarely display much military knowledge as officers in the medical corps. There followed at Lee more or less criticism of Greenleaf—and it was not confined to the infantry officers at headquarters. To properly appraise this criticism, it is necessary to consider the differences in the organization of the two schools.

Camp Greenleaf was primarily a medical officers' training school. During July and August, 1917, there were six battalions of physicians, and a seventh battalion was made up of veterinarians, dentists and sanitary corps officers. The heads of the camp were medical corps officers and the drill was the prescribed sanitary troop drill. The acting major in command of the Seventh Battalion was a medical officer. The companies of veterinary officers were officered by veterinarians who had had some military training at military schools or elsewhere. Veterinary officers sent to Greenleaf were handled as privates. They wore officer's uniforms, but not their insignia of rank. They were housed in barracks, drilled as privates in sanitary troops drill and cavalry drill, attended lectures on military topics, took part in the usual formations from reveille to retreat, and carried out the work of policing the streets, barracks, latrines, etc. A few had opportunities to act as first and second lieutenants and first sergeants of their companies, and toward the end of the two-month's training period each man was given some training in command of a few sets of fours from the company he was in. A number of veterinarians were detailed to act as officers of the guard at Fort Oglethorpe, and it may be said in passing that the colonel of the 11th Cavalry there is said to have regarded them as excellent guard officers. In fact, veterinarians, as a rule, took rather kindly to army life, much more so than medical officers at Greenleaf, as would be expected from their outdoor life and familiartiy with handling animals that require some strength and skill to control.

Division of Authority

During the period referred to and earlier, the veterinary instructions at Greenleaf—studies in mallein testing, making out Form 102, Special Regulation No. 70, etc.—were carried on by the veterinary instruction staff, a rather small staff for the amount of work to be done. The division of authority between the medical and veterinary heads was not entirely satisfactory, and the situation was remedied in September by putting the entire military and veterinary training under the veterinary heads, the veterinary companies being formed into a separate battalion.

The net result of the training at Greenleaf was that veterinary officers came away with some knowledge of army paperwork, regulations, etc., and some knowledge of sanitary troops drill, mostly the knowledge a private would have, since most of the time they had drilled as privates. At Lee, some of these officers naturally failed to measure up to what was demanded of them in commanding troops in large veterinary units. The commanding officer at Lee was a colonel of infantry, formerly a cavalry officer, a Manchu who had been sent there from the Quartermaster Department, according to report, and who was returned to remount service in January, 1919, when the school was demobilized. During his command, he never addressed the veterinary officers of the school, not even on the signing of the armistice, and did not show, in any way that was visible to these officers, an interest in their welfare or services. In addition to the headquarters force in charge of military affairs, there were infantry officers in charge of the eight provisional companies, all of them, as might be expected in the large army hastily gathered together to meet the demands of this great war, graduates of the officers' training camps. Like the veterinary officers they trained, these men were amateur

soldiers, capable of doing their work, but not measuring up in all instances to the best type of officer. Some of them tried to be "hard-boiled" (an unfortunate expression and ideal) and only succeeded in being discourteous and boorish. Many of the attempts at being "hard-boiled" in our army merely resulted in being "half-baked", men not naturally pugnacious nor courageous assuming an uncalled-for air of authority behind the protection of their rank and shoulder straps.

Officers Disciplined for Trivial Offenses

These infantrymen, accustomed to infantry drill and training camp methods for infantry and student officers of infantry, were scornful of sanitary troops drill. Their dislike for this drill was based in part on very real objection. A veterinary hospital unit, strung out in columns of fours with 92-inch distances between the fours, was a very unwieldly affair. One could scarcely give commands loud enough and distinct enough to be heard when such a unit was clattering with heavy field shoes along a hard road, and the change to infantry drill, made at a late date, was a real improvement. The dislike and scorn of the infantry officers was tranferred from the drill to the veterinary offcers who had to use it and to Camp Greenleaf where they were taught it. The fact that these veterinarians were officers and professional men, supposed to render professional services, was gradually lost sight of. Since they did not measure up to infantry standards, they were reduced to the standing of students and all semblance of the military courtesy due them as officers was withdrawn. Very rigid discipline was applied to the veterinary offcers, though discipline was a very casual affair so far as infantry officers were concerned. Some veterinary officers were confined to the limits of the veterinary training school for thirty days for not coming directly to Lee from Greenleaf, though infantry officers and some veterinary officers under similar circumstances were not so disciplined. Discipline for absence without leave was severely enforced for veterinary officers, but infantry officers, to the writer's knowledge, could be absent without leave for days, and were on a number of occasions. For failure, through oversight to report absences from one drill in writing, a veterinarian with a field officer's rank and of twenty-five years' service in the regulars was confined to the veterinary training school for two days, contrary to the regulations, which state that officers shall not be disciplined for trivial offenses and contrary to the courtesy due an officer of this rank and length of service. Veterinary officers fresh from civil life were given one-day commands as officer of the guard, and were confined to the school limits for ten days for failure on the part of Post No. 1 to recognize the C. O. and turn out the guard promptly, a procedure verging closely on hazing. An infantry officer in urging veterinary officers to attend a dance given by the infantry officers one night stated that there were sixteen veterinary officers confined to the school and that they might as well go to the dance. This dance, it may be said in passing, was the occasion for some distinct breaches of army regulations, but there was no visible evidence that anyone was disciplined for these offenses.

In usurping the function of Greenleaf as a training school for veterinary officers, Lee did not stop at rigid discipline for these officers. As stated above, courtesy due these officers as such was dispensed with and the officers were drilled in the style established by Irish drill masters for recruits. The veterinarians were required to attend this drill and were liberally cursed and "bawled out" by their infantry drill masters. On one occasion an infantry officer told a veterinary officer, in effect, during officers' drill, that he would like to smash his nose. The veterinarian tried to prefer charges against the infantry officer for the use of provocative language and was told by the adjutant, an infantry captain, that he was incompetent to prefer charges! Contrary to well established army custom, infantry officers "called down" veterinary officers in front of their troops, and did numerous other things to establish the fact that the veterinary training school was being run by and for the infantry officers and not by the veterinary corps for the good of the service and the utilization of veterinary ability in winning the war.

Attendance at Evening Classes Required

As part of the program to make military men of veterinary officers at Lee, evening classes of an hour and a half were devoted to Infantry Drill Regulations, Manual of Interior Guard Duty, and Field

Service Regulations. These classes ultimately became a bore to the infantry officers, who preferred to spend their evenings more pleasantly, and perhaps more profitably, so they would come in, turn the class over to the senior veterinary officer present, and leave for pleasanter places. These tedious and unprofitable evening classes were continued for weeks after the signing of the armistice, at a time when it was evident that the veterinary officers would return to private life as soon as they were permitted to do so, and would have no possible use for this intensive military training during their remaining army career or their future life. If it was supposed that the training might be useful to the veterinary corps in a future war, these classes defeated their own purpose, as these classes and other features mentioned were so detested by the veterinary officers that they became disgusted with the veterinary corps and almost unanimously asked for immediate and complete discharge when given the option of this or enlistment in the regulars or reserves.

It was the opinion of the veterinary officers that in a future war it would serve the country better if they kept their professional services in private life where they could be used, or discarded them and went to an officers' training camp for service with combat troops. There were probably hundreds of veterinary officers who never did any veterinary work in approximately six months of service, and who spent those months in military training. In many instances, the burden of all this student work was added to the work of a veterinary unit officer, and there were instances where unit commanders, unit adjutants and other officers, were confined to the veterinary training school by the Senior Veterinary Instructor, without being allowed to state their cases, because the pressure of their work as unit officers prevented their attending their lectures as students. In passing, it may be said that probably none of the men at Washington in charge of the veterinary corps could successfully command troops in company drill by platoons, make out a duty roster and ration return, or conduct a mess-kit inspection, and even the highly military Senior Veterinary Instructor at Lee admitted that he didn't know what a bad check was. If these directors at Washington could do without this information, if the Senior Veterinary Instructor at Lee could serve as an army veterinarian for thirty years without it, would it not have been more logical to devote to the newer discoveries of veterinary science, the time that was devoted to useless elaborations of the drill manual? It requires some explaining to show why noncombatant staff officers, whose sole need of military training was limited to a knowledge of saluting or of the few manoeuvers necessary to move the enlisted personnel of a hospital unit from one location to another, men who were on the same footing as medical officers, should spend six months, including months of day and night work, on military training, when infantry officers, requiring far more military knowledge, were turned out from training camps in three months. It is especially difficult to understand when we have reports from some camps of veterinarians overworked and overloaded with professional duties; when we are informed that there was 100 per cent of mange in our army horses in France at one time, while veterinarians who had specialized in mange and allied diseases spent over six months drilling in the United States. To understand why this was done, it is necessary to consider the veterinary instruction staff at the veterinary training school.

Some time before the United States entered the war, the writer had heard some veterinarians express the opinion that if the army veterinarians were only military men, it would improve their standing immensely. The fallacy of this was not evident at first sight; it became evident through the working out of the idea at Lee. The first duty of a veterinarian, in the army or out of it, is to be a competent veterinarian. In the army it is his duty to keep the public animals fit and effective, and if he can do this, his knowledge of the niceties of interior guard duty is of little moment. By the same token, if he cannot do this, his knowledge of interior guard duty is again of little moment. The medical corps, in its long experience, has apparently never suffered from delusions on this score.

Esprit De Corps Lacking

The senior instructor at Lee was a man with whom military affairs were an obsession and veterinary affairs apparently mat-

ters of little interest. It was not until near the time of demobilization that he allowed the veterinary officers at veterinary training school to have lectures on veterinary topics, though medical officers at Greenleaf and elsewhere devoted much time to the study of new developments in medical lines. His leading idea was discipline. It may be admitted that war is a serious business and that discipline is necessary in an army, but army discipline is that which secures prompt obedience to orders. The discipline of the Senior Instructor at Lee was a different thing. It consisted in the application of disciplinary punishments for every error, a persistent talking of discipline, of "nailing to the cross" and "breaking a man's spirit," as though men of spirit were undesirables, as though these veterinarians, who had given up good incomes, a comfortable life, and family ties to enter the army and serve the country, were a set of willful, naughty boys who must be taught to behave. His discipline had little regard for efficiency in veterinary lines. It had in it little or nothing of courtesy. On two occasions he told the assembled veterinary officers that he would rather be known by one of the most offensive names that one can apply to a man than be known as a good fellow—and it is not surprising that his wishes in this matter were respected, as they would be in the case of anyone wishing such a thing. His discipline was devoid of morale, esprit de corps or professional appeal.

Here was the pity of the whole affair. Hundreds of veterinary officers went to Lee full of enthusiasm, willingness and professional spirit, anxious to do something for the republic, the veterinary corps and the veterinary profession. They had something more than mere discipline, mere training in prompt obedience. They had that morale and esprit for which good commanders always strive and from which the best type of discipline grows when fostered by capable officers who like men—a spontaneous discipline which makes obedience not only automatic, but pleasant; which makes officers who can lead men into action without fear of a shot in the back—the American type of officer as opposed to the Prussian type. These men would have carried on even the pointless military work at Lee with good spirit if they had had good officers who valued courtesy and esprit de corps, or they would have cheerfully carried on professional work under officers who did not value these things. But the combination of unfriendly discipline, discourtesy and pointless, tedious military drill was fatal.

Fine Enthusiasm Killed

With the fine enthusiasm that these men took into the army, brought away from the good fellowship of the barracks life at Greenleaf, and carried into Lee with their hope and prospect of overseas service, it was a golden opportunity to build up a fine enthusiasm for the service and for the profession; every officer at Lee should have left the service well satisfied with his profession and with his effort to serve the country. A large part of them, under reasonable conditions, should have elected to remain in the regulars and the remainder should have returned to the reserves. Instead, they were handled in such a way as to kill that enthusiasm, to disgust them with their profession and the veterinary corps, and to return them to civil life with the consciousness that their army life had been for the most part a failure and that they would have accomplished more for the country and its live stock interests, and just as much for the army horse and mule, if they had remained at home in their professional work. The failure of the Senior Instructor to maintain contact with the veterinary officers was repeated for the most part in his instruction staff. With a couple of exceptions, they followed his lead faithfully and held themselves aloof from, and superior to the veterinary officers sent to Lee for overseas service. It is perhaps sufficient comment on the lack of emphasis put on veterinary matters at Lee, to say that this instruction staff, all with the rank of captain, consisting of two bacteriologists, a canine specialist, a practitioner, and three young men not long out of college, apparently had as their principal occupation the teaching of equitation to veterinary officers, some of whom were real horsemen to begin with.

The apparently pointless delay in demobilizing some army organizations, a delay which led to an order from Washington that demobilization be undertaken in accordance with previous orders, occurred at the veterinary training school at Lee among other places. The last group of officers, about 50, were released from the service on January

18, 1919, about two months after the signing of the armistice, long after the demobilization of the group to which they belonged, and long after it was evident that their services would not be used, if we may depend on the public utterances of the Chief of Staff. The reason for this delay was not apparent, but there certainly should have been a reason why these veterinarians were kept away from the care of the live stock of the country when the food supply became our most important problem, and when the hard-won money from Liberty Bonds and thrift stamps, bought by the sacrifices and self-denial of workers and children, was paying for the useless maintenance of this school.

The subject of promotions and appointments is always a fruitful source of dissatisfaction, and promotions in the veterinary corps were no exceptions. The Senior Instructor at the veterinary training school admitted in a talk to the veterinary officers that some extremely bad selections had been made. There is no disputing this, so let it go at that.

What then was the trouble at Lee? Briefly, false ideals for one thing; the ideal of a non-combatant veterinary officer as well versed in military topics as an infantry officer; the over-emphasis of military knowledge to the exclusion of professional knowledge, with a concomitant loss of professional standing unaccompanied by a compensatory gain in military standing, since non-combatants cannot hope to stand high in strictly military circles on their military knowledge.

For another thing, there was a lack of high officers who liked men and who believed that morale and courtesy were as desirable as formal discipline. There are only two kinds of officers, those who like men and those who do not. The former obtain discipline based on morale, spirit and reciprocated liking, discipline with a self-starter. Such men can be rigid or easy in their discipline and still obtain good results; they still had good discipline after the armistice and through demobilization. The latter have only discipline which is backed by court martial; discipline that must be cranked to keep it going. Such men are despised when their discipline is easy and hated when it is severe; such organizations lost much of their discipline after the armistice.

Writing a paper of this sort is not in the nature of a pleasure. It is not done with the idea of airing anyone's personal grievances. But in a future war, veterinarians from civil life will want some assurance that, if they enter the veterinary corps, they will be accorded the standing and courtesy due their rank and that their professional services will be utilized. As was noted earlier, what is said here represents the opinion of practically all the veterinary officers at Lee from September on, and is written at their request. I do not feel capable of presenting the case of the enlisted veterinarians. The veterinarians who were officers at Lee, returned to civil life resolved to give no support to the veterinary corps in the way of legislation or otherwise, unless it reorganized in a way that gave promise of fair, honest, efficient service; evidence that it was capable of recognizing efficiency and using it. This sentiment will doubtless be widely diffused over the country. If the heads of the corps are indifferent to the opinion of these men or the profession at large—and members of the instruction staff at Lee very frankly told me that these officers were unimportant and carried little or no weight—then the heads of the corps will doubtless disregard them, reorganize as they organized—to suit themselves—and look elsewhere for support. Otherwise we will look forward with interest to a statement of plans and personnel for the future.

MINERAL LACK BRINGS BREAKDOWN IN SWINE

Breaking down of hogs through the fracture of the thigh bones is caused by a deficiency in the mineral ration of swine, according to specialists in animal nutrition at the Ohio Experiment Station. Breaking down often causes heavy losses to shippers of livestock; farm brood sows frequently break down while suckling pigs.

Experiments show that a deficiency of bone foods in the ration of growing animals may reduce the breaking strength of the bone by one-half without restricting its growth to a noticeable extent.

Calcium and phosphorus, the most important minerals required by swine may be supplied by feeding bone flour, wood ashes, corncob charcoal or lime. Raw rock phosphate is frequently used, too. The two elements are especially deficient in corn, seeds, cereals and cereal products. Skim milk and tankage occupy first place as sources of mineral nutriment for the corn-fed hog.—*Ohio Agr. Exp. Sta.*

The Serum Producer and the Veterinarian

By C. H. GOEBEL, Kansas City, Missouri
President of the Associated Serum Companies of America

THE manufacture of antihog-cholera serum and virus has reached such magnitude today that it has taken its place and is classified as one of our leading commercial industries throughout the United States.

In the Middle West there are numerous up-to-date serum plants busily engaged in producing antihog-cholera serum and virus and sending them into every hog-raising community. There is a new field in the sale of these products which is yet undeveloped, and if it had not been for the World War these products by this time would have been firmly established in foreign hog-rasing countries. The production of antihog-cholera serum and virus is absolutely essential in proctecting the swine industry of this country, and the Bureau of Animal Industry, in co-operating with the serum plants, has succeeded in developing a highly standardized product.

With the prospect of a foreign demand for serum and virus, and an ever increasing demand for these products in the hog-raising sections of America, the problem that is worrying the producer is how he can increase his production in accordance with the ever growing demand. The total production of serum for 1918 was approximately 300,000,000 c.c. This was only about half enough for the season of 1918 when there was less hog cholera than has ever been known before; however, if there had been an outbreak, this amount of serum would not have been a drop in the bucket, yet the capacity of the serum plants was pressed to the limit. As a consequence, the producers of antihog-cholera serum and virus have during the past season enlarged their plants and capacities in an endeavor to supply the ever growing demand for these products. The estimated number of hogs in the United States today is 75,000,000, and figuring on a basis of 40 cubic centimeters for every 100-pound pig, or 40,000,000 cubic centimeters of serum for every million hogs vaccinated, it is evident that the surface has not been scratched so far as the general use of antihog-cholera serum and virus is concerned. With statistics showing an increased use each year over the previous years, the serum producer must adequately provide serum and virus for future demands during the dull seasons.

Closer Relationship Between Producer and Veterinarian Necessary

The producers of antihog-cholera serum and virus must make an outlay of considerable capital to stock up on serum and virus during the dull seasons, which is usually the winter months, and to successfully handle the situation as it stands at present, considering the amount of capital involved in every cubic centimeter of serum that is produced and stored, there must be a closer relationship existing between the producer and the veterinarian. The veterinarian vaccinates the farmers' hogs, and is the only man who can reliably estimate the possible demands for the coming season, and the producer must more and more become dependent upon the judgment of the veterinarian in providing for the future demands upon the supply of antihog-cholera serum and virus. Some veterinarians change from one brand of serum to another with the seasons, but it is not at all wise for a veterinarian to continually change from one firm to another unless he has some just cause or grievance for example, for the past two years, despite a decrease of hog cholera, serum plants have worked to their fullest capacity in an endeavor to relieve the acute shortage that has existed. Batch after batch of serum was sold long before it was off test. The serum producers naturally give preference to their regular customers, which they did, and this was no more than right. The veterinarian appreciates the advantage of dealing year in and year out with a reliable firm. Ninety-five per cent of the changes between veterinarian and producer have been due to the variance in price, which has served as an excellent inducement to change. Variations in price are not due to the fact that a higher price serum carries a better quality, but to the fact that one brand may be giving an added service feature, while another has a larger over-

head, all of which is neccessary and adds to the cost of production.

If a producer can figure on, say the basis of one hundred veterinarians as his customers, he can keep his ear to the ground with reference to the future demand for antihog-cholera serum and virus. He can regulate his production to meet this demand, and thus protect himself and the veterinarian. In cases where the veterinary surgeon has a large clientele, which expects him to keep their hogs immune, it is necessary for him to use a good deal of serum. He should keep in touch with the situation; should inform his producer; and should at all times keep a sufficient supply of serum and virus on hand to meet emergencies that may arise.

The serum producer's products are somewhat different from the general manufactured products. Serum cannot be shelved and marketed at any old time, or five years hence. It must be marketed quickly. The serum producer must have quick working capital, as his business is on a cash basis, and it is necessary for him to receive prompt remittance for all goods he ships, and he must watch his credits closely. There is no doubt that the veterinarian is the main cog in the wheel of success that serum and virus have gained in the field, and the good results obtained are due largely to the veterinarian's scientific knowledge of administering antihog-cholera serum and virus, and the conditions and surroundings that must lead up to successful vaccination.

For these reasons the producer of antihog-cholera serum and virus is more and more dependent upon the veterinarian in determining the supply of serum necessary for the demand. The veterinarian is dependent upon the producer for a supply of antihog-cholera serum and virus sufficient for the needs of his particular section of the country. So, the veterinarian and the producer must work in close harmony in an endeavor to supply and administer antihog-cholera serum and virus, and create and protect the large, marketable supply of hogs of the United States.

Bacterial Infections in Swine and Their Relation to Hog Cholera*

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REPORTS and inquiries from numerous sources indicate that the most interesting subjects to the swine grower and the veterinarian at the present time are bacterial infections and hog cholera. Since the discovery by Dorset, (13) Bolton and McBryde that hog cholera was caused by a filtrable virus, there has been a tendency among veterinarians to attribute all swine diseases to this source without investigating disease conditions produced by other bacterial infections. During the last three years reports have been received indicating the prevalence of diseases in swine other than those caused by the filtrable virus. Extensive research conducted along these lines has resulted in the accumulation of evidence showing conclusively that there are disease conditions in hogs other than hog cholera and that these conditions are the result of bacterial infections.

This field is so broad that we can only offer, briefly, information which will be of interest to the practitioner and better enable him to recognize, differentiate and treat these conditions when met in general practice. A report at this time may also serve to stimulate further research by others, resulting in the accumulation of more definite information regarding swine diseases.

"Mixed infection" is a term which has come into general use and is applied to bacterial infections other than hog cholera. Practically all cases of hog cholera are accompanied by some other bacterial infection; whereas other infections may exist in swine without the presence of the filtrable virus. It is believed that the secondary invaders play a very important part in the high mortality occurring from infection by the filtrable virus.

As a result of a large number of autopsies and the examination of numerous field specimens obtained from sick swine, the

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following micro-organisms have been consistently isolated: (1) B. suisepticus; (2) B. suipestifer; (3) B. paratyphosus "A" and "B"; (4) B. enteritidis; (5) B. pyocyaneus; (6) B. coli communis; (7) the micrococcus of hog cholera.

Proescher (1) has previously reported regarding the etiology of hog cholera and will render a third report in the near future.

Hemorrhagic Septicemia

The disease next in importance to hog cholera in swine is hemorrhagic septicemia or swine plague. In a large number of field cases of sickness reported in swine, the B. suisepticus has been found to be the predominating micro-organism present. This organism has been obtained in pure culture. Blood from such cases has been filtered and injected into pigs which did not contract hog cholera. Virus inoculations showed their susceptibility. Intravenous injections of pure cultures of these strains of suisepticus have killed pigs within ten hours.

It may be of interest to give the autopsy findings upon one of these cases.

A pig injected intravenously with 10 cc. fourteen days' old suisepticus culture showed a very high temperature on the second (Max. 107.6°) and third days (Max. 108.2°) and died.

Autopsy

Lungs: Small brownish red multiple hemorrhages found principally in caudal lobes.

Lymphatic glands: Edematous, with small hemorrhages throughout the glandular tissue.

Myocardium: Showed small hemorrhages—in places tendency to become diffuse, accompanied by marked fatty degeneration.

Bladder and Kidneys: Showed minute hemorrhages.

Skin: Small hemorrhages—some diffuse.

Intestines: Numerous small hemorrhages distributed over the mucosa. No ulcers.

Practically the same conditions are found in field cases showing recent infection. More advanced cases show an extensive hemorrhagic condition of the tissues, frequently accompanied by pneumonia and pleurisy.

Differentiation Difficult

Two veterinarians with extensive experience in making autopsies on virus pigs were unable to differentiate such cases from those known to be caused by the filtrable virus.

By some authorities swine plague is referred to as infectious pneumonia, owing to the tendency to produce croupous or lobar pneumonia, frequently accompanied by pleurisy.

All evidence points to the conclusion that practically all of the large hemorrhagic lesions observed cutaneously, subcutaneously, and on the mucous and serous membranes, frequently accompanied by pneumonia, are in reality caused by the B. suisepticus. The impression has been given veterinarians in the past by Reynolds (2), Connoway (3), Dorset (4), and others, that swine plague did not exist as a separate disease condition in the United States.

On the other hand, De Schweinetz (5) in 1899 produced sera protective against hog cholera and swine plague, but one would not protect against the other, indicating the existence of two separate disease conditions. Reports by Kinsley (6), Hutrya and Marek (7), Stewart (8), Carter (9), and Schwarze (11) all verify our findings.

A large percentage of field cases of hog cholera and swine plague are also accompanied by intestinal invaders, resulting in the production of enteritis. Micro-organisms classified in the paratyphoid group are found to predominate in these cases.

Experimentally, pigs have been injected intravenously with 2 cc. of B. paratyphosus "B" and have died in fifteen hours. Autopsy findings were as follows:

Spleen: Enlarged, dark bluish red.

Kidneys: Cortex gray, medullary reddish; few small hemorrhages.

Bladder: Small hemorrhages.

Intestines: Small hemorrhages. Cecum showed multiple lentil-sized ulcers. Numerous necrotic areas were found around the ileocecal valve. The jejunum and ileum showed many small, deep red hemorrhages and many small ulcers.

Lympathic Glands: Enlarged and hemorrhagic. No suisepticus or filtrable virus present. Not much rise in temperature.

Field cases show very little rise in temperature, but have persistent diarrhea. The

autopsy findings are the same as above, except that in advanced cases there exists extensive diffuse ulcer formation, sometimes involving not only the mucosa but the muscular coats and by extension the serous coat.

Injections intravenously of 4 cc. of pure cultures of B. pyocyaneous have made pigs sick, and caused some rise in temperature, but have not resulted in their death. The enteritis found in these cases should, strictly speaking, not be called necrotic enteritis, but diphtheritic enteritis. The condition is evidently not caused by the B. necrophorus, as it is very seldom found and, if present, is considered only as a secondary invader of little pathological significance. The general consensus of opinion at the present time is that infections due to the micrococcus of hog cholera or suisepticus, singly or co-jointly, lessen the resistance of the animal and pave the way for secondary bacterial infection from the enteritis group. Infection by the filtrable virus, B. suisepticus, or as a result of improper housing, feeding, or exposure to cold may be predisposing factors, permitting these micro-organisms to become infectious and produce diseased conditions. The evidence indicates, in the case of B. suisepticus, that susceptible animals become infected, thereby increasing the virulence of this micro-organism, which is then capable of carrying the disease to other susceptible animals.

Proescher has found that the micrococcus of hog cholera causes very minute hemorrhages in the intestinal mucosa. Later, infection from suisepticus or any one or several of the enteritis group may subsequently follow. Micro-organisms classified in the paratyphoid group are found to be abundant in intestinal ulcers. The B. pyocyaneus and coli communis are found to be present and may become pathogenic in many cases.

Uhlenhuth (10), Schwarze (11), Stange, Birch, Carter (9), and Fitch (12) also state that they do not find the B. necrophorus to be the cause of so-called "necrotic enteritis."

The "button" ulcer frequently occurs in cases of hog cholera and swine plague where sufficient time has elapsed for invasion by secondary infections, but may exist without hog cholera and does not necessarily indicate the presence of the filtrable virus. Infection by the paratyphoid group (B. suipestifer, B. paratyphosus "B") shows a tendency to the production of intestinal hemorrhages, subsequently followed by ulcer formation; but, in addition, also produces petechiae and hemorrhagic conditions in the kidneys and bladder, resembling in many instances those produced by the B. suisepticus, but smaller in size with less tendency to become diffuse.

Majority of Loss Due to Filtrable Virus

In field cases where there is considerable loss by death, the majority of these outbreaks are primarily caused by the filtrable virus. Secondary infection may subsequently take place and result in invasions from any of the so-called "mixed infection" group. Infection may occur from one or more of these micro-organisms, according to their virulence or the resistance of the animal. Suisepticus infection is frequently accompanied by infection by some of the enteritis group.

All of our experimental work indicates that hog cholera is primarily an acute septicemia and that the so-called cases of chronic hog cholera are ones which have not succumbed to the filtrable virus infection, but in which mixed infection has occurred with the production of pneumonia or enteritis, as the case may be.

As previously reported, Proescher has been able to isolate a very minute micrococcus, cultivate same artificially to the forty-second subculture, and render the micro-organism visible by staining with methylene azure carbonate. This micro-organism has produced hog cholera with the sixth subculture and has been recovered in pure culture after successively passing through three dense filters. Pigs have been inoculated with the pure culture, the micrococcus recovered, cultivated artifically, reinoculated, and recovered repeatedly with the typical production of hog cholera in each instance. Minute hemorrhages are observed in the skin, intestinal mucosa, kidneys, bladder and lymphatic glands.

Experimental work is now being conducted to determine if it is possible to produce an anti-hog cholera vaccine. It is evident that hog cholera is an acute febrile disease, which produces very few microscopic lesions. Most of the lesions observed in the field cases are in reality due to secondary invaders. This is one of the reasons that, in herds infected with hog cholera, the first animals to die or to be autopsied, frequently exhibit very few, if any, lesions.

The most difficult problem the practitioner has to solve is the one of differential diagnosis. The death losses from swine plague and other secondary bacterial infections are not so great, but the economic loss in weight and thriftiness is large. To administer more serum to a herd recently vaccinated against hog cholera is practically useless, with a waste of serum. To give hemorrhagic septicemia vaccine to a herd infected with hog cholera may be disastrous. The practitioner must always carefully consider the history, symptoms, death rate and autopsy findings, with previous treatment, before a diagnosis is made. If the pigs are dying, have high temperatures, and hog cholera is prevalent in that section, the only safe diagnosis is that of infection due to the filtrable virus. The well and sick pigs should be separated on a basis of their temperature and physical condition. Give serum alone to sick pigs and serum and virus to well pigs. If "breaks" have occurred in previous years, administer serum, virus and mixed vaccine simultaneously.

All mixed vaccine should contain at least fifty per cent of B. suisepticus, the balance of the dose being made up of the secondary invaders most commonly found. In herds which have had simultaneous treatment for hog cholera and "breaks" have subsequently occurred, administer mixed vaccine. In some instances it may be necessary to repeat this treatment. Swine plague is frequently accompanied by bacterial infection or other invaders, and, because of this fact, a mixed vaccine will give better results than an exclusive suisepticus vaccine.

As an auxiliary treatment a disinfectant should be added to the drinking water or slop. Best results have been obtained from the use of copper sulphate—eight ounces to the gallon, dissolved to make a stock solution, and one pint of this to be added to ten gallons of drinking water. This has proven very effective in checking diarrhea symptoms. The finds of the B. suisepticus or other secondary invaders does not exclude the presence of the filtrable virus, and, in such cases, careful laboratory tests, including filtration and inoculation, should be made. In most instances the veterinarian cannot wait for a report from the laboratory. However, there should be more cooperation between the laboratory and the practitioner, to their mutual advantage. The practitioner should from time to time forward samples or specimens obtained from field cases to the laboratory to verify his diagnosis.

Summary

1. It has been demonstrated that B. suisepticus causes hemorrhagic septicemia or swine plague without the presence of the filtrable virus.

2. Our experiments indicate that the paratyphoid group, including B. suipestifer, B. paratyphosus "B," in conjunction with B. pyocyaneus and B. coli communis, cause enteritis in swine.

3. So-called "necrotic enteritis" is not caused by B. necrophorus, because it is seldom found, and, if present, is considered only as a secondary invader with little pathological significance.

4. Hog cholera is nearly always accompanied by secondary bacterial infections, which have a tendency to increase the death rate by producing pneumonia and enteritis.

5. Proescher has isolated, stained and rendered visible a micrococcus obtained from the blood of pigs infected with acute hog cholera; has obtained this micro-organism in pure culture and transferred same to the forty-second subculture. Inoculation of susceptible pigs with the sixth subculture of this micro-organism has produced hog cholera.

This micrococcus has repeatedly been recovered in pure culture following filtration and subsequently inoculated into susceptible pigs, producing hog cholera with typical lesions, and recovered again in pure culture.

The evidence at hand at the present time indicates that this micrococcus causes hog cholera.

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The Federal Accredited Herd Method of Controling Tuberculosis in Cattle and the Practicing Veterinarian

By HERBERT LOTHE, B. S., D. V. M.,
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THE last few years have brought about a great change in veterinary practice, a veritable revolution, so to speak. I refer to the development of the motor driven vehicle. Not so very many years ago veterinarians with large practices built them up in our large centers of population. The inroad of the auto has changed things; the city practitioner has seen his source of income dwindle away at the approach of the gas driven vehicle and must look toward other fields. Some are catering to small animal practice with a greater or lesser degree of success, others are entering lines of endeavor outside the profession and others moving to rural communities to practice where the effects of the gas driven vehicle has not been so keenly felt. While the practitioner with a rural practice has not suffered to the same degree as his city brother, he has, nevertheless felt the effects of auto transportation and now the farm tractor promises to hurt some more. Some of us, particularly writers for veterinary periodicals, try to "kid" ourselves into believing that the auto has not hurt veterinary practice as a whole because it still continues to be remunerative. Other things have come up to take the place of the equine practice lost, but what might practice have been with our former equine practice plus what has been added since?

I am not here to bewail the loss of equine practice nor am I here in the capacity of a "kill-joy." The inroad of the auto is simply the result of workings of natural economic conditions beyond the control of anyone; people will and should have automobiles, even veterinarians.

The practitioner has built his practice, a business, if you please, in the belief that such economic conditions would continue so as to allow him to make a livelihood and a fair profit. The very fact that he has been able to exist and prosper more or less is evidence that he satisfies a want in industrial economy. In other words, the community in which he practices uses his services because it pays. The fact that he satisfies a legitimate want in our industrial economy gives him a sound economic foundation to stand upon. In other words, the practitioner of veterinary medicine is a necessary cog in the wheel of agricultural progress; he need make no excuse for his existence; he is not a parasite upon society.

The tuberculin testing of cattle is one of the problems the practitioner has had to meet. Enlightened cattle owners have learned that it pays to keep their herds tuberculosis free and have naturally turned to their local veterinarian for help. In an enlightened, progressive community devoting its energies to cattle production tuberculin testing is no small part of a practitioner's work. All states require a tuberculin test of cattle coming from other states, and in a cattle shipping community this is no small item financially. The practitioner has been furnishing this service and in many instances it constitutes a large part of his practice, probably not the major part, but in some instances enough to spell the difference between practicing at a profit or operating at a loss.

The federal government has now inaugurated a plan for campaigning against bovine tuberculosis known as the "Accredited herd" method. It is, briefly, as follows:

(1) The bureau of animal industry will, in co-operation with the state establish tuberculosis free accredited herds.

(2) An accredited herd is one that has passed two annual or three semi-annual tuberculin tests without reactors or clinical cases of tuberculosis.

(3) Such herds will be certified to by certificates good for one year, unless revoked earlier and cattle may be moved interstate by certificate obtained from the Bureau of Animal Industry or state, without further tuberculosis testing for period of one year.

*Paper read at meeting of Wisconsin State Veterinary Society, January, 1919.

(4) The tuberculin tests shall have been made by the Bureau of Animal Industry or regularly employed inspector of the State.

(1) *Establishing accredited herds.* There can be no objection to such an undertaking. All should see that this is a noble and worthy undertaking. I am for it.

(2) *Prerequisites for entrance of herd* (two annual and three semi-annual tests). While these are arbitrary they are on the whole satisfactory although a herd may be quite clean and have an occasional reactor. A herd satisfying the requirement should be a very safe herd to buy from.

(3) *Certification of herds as being tuberculosis free.* This is a commendable undertaking. The Bureau has published a pamphlet giving names of owners of accredited herds which may act as a stimulus to tuberculin testing. Some people like to see their names in print and this feature has a certain advertising value. I can see how this feature will act as a stimulus to the accredited herd plan for owners of tuberculin tested herds will desire to avail themselves of the publicity given by the pamphlet. I can see how it is going to "booost" the accredited herd idea but fail to see how it is going to entice the owner of untested cattle to test. All this type of man wants is to be allowed to keep what he has; he is afraid of losing his cows. What he needs is educating. The interstate shipping certificate good for one year sounds good, but does not work out well in practice. When a man buys cattle he wants to ship right away without having to wait several days for a certificate from a bureau employe located a long distance from his home.

He does not want a lot of correspondence and delay. Furthermore, I should hesitate to buy cattle on such a certificate, for the fact that a herd was tuberculosis free nine months ago is no assurance it is today. I'd want my test at the time of purchase or immediately after.

(4) *Testing to be done by Bureau of Animal Industry or State employes.* This means testing at no cost to the owner. This is the phase of the work that hits the practicing veterinarian and one that entirely eliminates him for testing cattle for entrance to the accredited herd list. He has no way of qualifying himself to be eligible to test under this plan unless he quits practice and sells his services to the government. Why should the practicing veterinarian be thus discriminated against? Let us look over the situation and see if we can find any legitimate reason why the qualified, honest local practitioner should not be allowed to do this work and what effect it will tend to have on veterinary practice in general.

What are the qualifications a veterinarian should have to successfully apply the tuberculin test? He should have the ability, i. e., know how to do the work, absolute integrity and willingess to apply the test.

Let us now see what the federal veterinarian has to offer compared to the local practitioner.

(1) *Ability.* The Bureau of Animal Industry and State pick their veterinarians from the graduates of the same colleges that supply practitioners; colleges give the same courses to both future B. A. I. employe and practitioner. It is reasonable to suppose that all the veterinary ability goes into the Bureau and inability into practice? The answer is, obviously, No. Is the training of the B. A. I. employe after leaving college such that it pre-eminently qualifiies him for tuberculin testing while that of the practitioner makes him unfit for such work?

I can see no reason why either should be more fitted than the other, and if there is any difference the practitioner should have the best of the B. A. I. employe for he sees clinical cases of every disease every day rather than the tatters of what has been a case before it arrived at the post-mortem table. I think we can safely assume that both classes of veterinarians have ability enough to tuberculin test cattle.

(2) *Integrity.* Is it reasonable to suppose that all the integrity flocks to the Bureau of Animal Industry and all unreliability into practice? You hear the remark at times, principally from veterinarians holding official positions, that a practicing veterinarian's judgment is apt to be warped in interpreting the tuberculin test out of his fear of losing the owner's future veterinary work if he finds reactors. Such a supposition is largely imaginary. While it may occur or has occurred at times it is a different matter to say it occurs with regularity. Cattlemen are not forced to tuberculin test their cattle, but do so of their own

free will, under the accredited herd or any other plan. These men want to know if tuberculosis is present. Of course we have the dishonest cattle man, but that has nothing to do with the veterinarian's honesty. Again, too, we hear too much of the "crooked" veterinarian who tests cattle, find no reactors and when herd is retested later a large percentage reacts. I will grant that there are "crooked" veterinarians in and out of practice, how many we do not know. I often wonder if some of the "crookedness" heaped at the door of the veterinarian in this connection should not have been laid at the door of the cattle owner or shipper. I believe the veterinarian has too often been unjustly criticized. I know of one instance where a large percentage of a shipment of cattle reacted on a retest following a test by a federal veterinarian. Had that happened to a practitioner he would have had a hard time to convince state and federal authorities that he was not dishonest.

In this case, however, the owner must have been dishonest, they thought, for the federal veterinarian couldn't be. I am not saying he was, understand, but simply making a comparison.

The nature of tuberculosis control is not such that it cannot be done by the local practitioner. It has been likened to tick eradication* in the south. The two are not comparable. In any plan for controlling tuberculosis the eradication of the disease from the individual herd must form the unit to work upon; clean up the individual herd and it is simply a matter of multiplication when the whole country is clean. Theoretically that is true, but practically it is quite a task, a colossal task, in fact. Granting that the herd is the unit, if a practicing veterinarian can render one herd free from tuberculosis he has done a little and at least made a start toward eradicating tuberculosis. I can cite any number of herds in my community and many other communities that are tuberculosis free and made so by local practitioners at the request of cattle owners who want to keep their herds clean. It is the tuberculin testing of these tested herds that the Bureau of Animal Industry is taking away from the practitioner. Of all the herds in my locality the testing of which the Bureau of Animal Industry has taken over there is not one that has not been regularly tuberculin tested by a practitioner of my locality. These herds were tuberculosis free or nearly so before the Bureau undertook to do the testing. They proved to be in the same shape too after the Bureau veterinarians finished their testing. Did the Bureau gain a point nearer their goal of exterminating tuberculosis by these tests that would not have been gained had the work been left to the local practitioner? The same results would have been obtained.

The results of such tests made good material for an annual report as an accomplishment of the Bureau, but the same thing would have been obtained had the Bureau employes never appeared on the scene. (That part does not appear in their report, however.)

(*4*) *Free tuberculin testing.* The Federal Government makes no charge for testing. The practitioner, of course, must make a charge for his services. He cannot compete with paternalism. What is the effect of this on tuberculosis control? My experience has been that it is not the veterinary charge that keeps owners of cattle from having their herds tested, but the fear of losing part of their herds; the financial loss he might experience by testing. They do not object to a reasonable veterinary charge even when they lose a goodly portion of their herd. The matter of $20.00 to $25.00 for veterinary service is a small item compared to the loss of the cattle. Once you get an anti-tuberculin-test advocate to test his herd and it passes with no reactors you have a strong advocate thereafter for the test. He is for it from then on. He knows where he stands after testing and is no longer a slave to his fear of financial loss by testing. The main effect of the "no charge" clause is to popularize the "accredited herd" plan. It is a "leader," speaking in mercantile language, to attract owners of tuburculin tested herds to the bureau plan. You cannot blame the cattle owner for taking all he can get for nothing. Give most local veterinarians an even chance with a strange veterinarian, Bureau of State, charges being the same, and I dare say the local practitioner would get the job nearly every time.

In my county the state has undertaken to tuberculin test all cattle under what is

*Kiernan. "Tuberculosis and Our Live Stock Industry." Jour. A. V. M. A., Vol. 7, No. 3, pp. 107-126.

known as the "limited area" plan, doing the work for nothing. In many instances cattle owners have employed their local veterinarian, paying him for his time, rather than take a chance on a veterinarian they do not know.

The state men were all right, understand, and I am not questioning their ability nor casting any reflections, but the cattle owners did not know. I merely cite this as illustrative of the point that it is not the cost of the testing that is the handicap. Many of these herds had never been tested before and in some instances a goodly percentage of reactors were found by the local practitioner.

A cattle owner should and does look at the cost of tuberculin testing as a part of his operating expense—overhead charge—of his business. Is it fair that the urban tax payer should be taxed to pay operating expenses of the cattle owner?

Is it inducive to the building up of the veterinary profession that the federal government take part of a practicing veterinarian's livelihood away from him? It may not mean much to practitioners in some localities, while in others it means much. In my own individual case it has amounted to a few hundred dollars during the past year. That was my tax to help pay the bureau veterinarian. The free testing does not mean much now, perhaps, it is in its infancy, compared to what it will mean in the course of a few years. I have visions of the Bureau doing the major part or all the tuberculin testing, which means a loss to the practitioner. In some instances sufficient to make practice non-renumerative, which means one of two things: either go into some other business, or get a job with the Bureau.

Our present economic system recognizes the institution of "private property" as contrasted to "community ownership". A few have socialistic ideas and believe everything connected with the institution of "private property" is wrong; these are in the minority, however, as evidenced by their small numbers in our law making bodies. To such an extent is the institution of "private property" recognized that we have a clause in our constitution stating that "private property" shall not be taken for public use without just compensation." A veterinarian has, in a sense, a property right in his veterinary practice. He has built up that practice and it seems hardly just that the federal government shall take it away from him. It has not been proven that his tuberculin testing is a nuisance for all practitioners are not "crooked". Many practitioners, the majority I dare say, have shown that they can and do execute this part of their work satisfactorily. He fills a place in the commercial world and is entitled to all the veterinary practice he can take care of and do well.

I have tried to sound a friendly warning seeing things, possibly through the colored glasses of a practicing veterinarian. This thing may not have reached great proportions at present but you can readily see what it might mean in the course of a few years. Annual reports with figures properly served bring appropriations from Congress.

Summary. I have tried to show you that:

(1) The gasoline vehicle has levied a toll on veterinary practice, the result of operation of natural economic conditions beyond control.

(2) The Federal Government is about to levy another toll in the form of free tuberculin testing under the present "Accredited Herd" plan.

(A) That it is not the result of economic demands without the profession is shown by the fact that:

(A) Local practitioner has same ability as bureau veterinarians.

(B) Bureau veterinarian has no corner on integrity.

(C) Tuberculin testing has been done by practitioners with good results. What progress has been made in tuberculosis control has been made by using the practitioner to apply the test.

(D) The work the bureau is now setting out to do has been done by the local practitioner. The bureau tests no herds the practitioner would not test anyhow.

(E) Cattle owners do not object to paying for their testing to a degree that the veterinary charge is a hindrance to general progress of tuberculosis control.

(2) The idea of testing without charge is unjust.

(A) Urban citizen is taxed to pay operating expense of cattle owner.

(B) It is derogatory to veterinary development in general by discriminating against practitioner. General adoption of the plan will discourage able men from

entering the profession by lowering the possibilities of a good income from practice.

(C) The plan, to all intents and purposes, amounts to confiscation.

The Bureau of Animal Industry has started this movement; the main idea is good. There can be no question but that control and eradication of tuberculosis in cattle is good for the country. We will have no argument on that score. The method of approaching the problem is where the opinion of the local practitioner and the present plan is at variance. What are we going to do? Are we going to let things take their course as they will, or exert ourselves to have things changed to such a degree that the practitioner gets a "fair shake"? It is up to us. We may influence the Bureau of Animal Industry. This plan has been conceived in the Bureau of Animal Industry. The heads of the various departments have evolved the plan. Let us make them see things in their true light. Make these men, veterinarians if you please, realize that they are hurting the local practitioner by not recognizing his tuberculin tests. Allow me to quote Dr. V. A. Moore, Director of the Cornell Veterinary College: "Veterinary practitioners are professionally educated men. If it is necessary to call a stranger to apply a modern test or preventive agent, it tends strongly to belittle, in the opinion of the public, the ability of the local veterinarian and indirectly reflects upon the efficiency of the profession.*

An honest veterinary practitioner's test should allow the owner of cattle to be accepted for the "Accredited Herds" list. Testing by federal veterinarians free of charge should be discontinued. The problem of bovine tuberculosis should best be approached by a campaign of education of the stock owner. This is the province of the federal veterinarian. We need have no fear for the owners of tested herds; they do not need charity as an aid to their business. The Bureau is making great progress only when it gets new converts to the idea that tuberculin testing pays. The actual application of the tuberculin test is the province of the practitioner.

Allow me to quote Abraham Lincoln: "The legitimate object of government is to do for a community of people whatever they need to have done, but cannot do at all, or cannot do so well for themselves, in their separate or individual capacities. In all that the people can individually do as well for themselves, government ought not to interfere." It has not been shown that the individual practitioner cannot satisfactorily tuberculin test cattle nor that the cattle owning public has suffered from allowing him to test cattle.

*V. A. Moore. "The Veterinary Practitioner in the Control of Infectious Diseases." Jour. A. V. M. A. Vol. VII. pp. 211-216.

DR. J. T. NATTRESS

Just as we were going to press came the news of the sudden death of Dr. J. T. Nattress of Delavan, Ill., March 19th, at his home in Delavan. Dr. Nattress had been in ill health for some time; the immediate cause of death was heart failure. He had never fully recovered from a severe attack of ptomaine poisoning he suffered several years ago while in attendance at a meeting of the A. V. M. A.

Dr. Nattress was prominent in veterinary circles. He was a member of the A. V. M. A., and for thirty-three years had been an active and influential member of the Illinois Veterinary Medical Association, of which he was past president. He was a member of the association's legislative committee and chairman of the Board of Censors. He was also prominent in live stock and breeders' associations, his name frequently appearing on the program of their meetings. His unusual ability as a practitioner enabled him to build and conduct one of the best veterinary practices in the Middle West.

During the thirty-three years of his work for the Illinois Veterinary Association, Dr. Nattress served the association on many important committees and missed less than half a dozen meetings of the association. The following veterinarians, members of the Illinois Veterinary Association, attended the funeral: W. H. Welch, W. J. Martin (a classmate of Dr. Nattress), Jas. Smellie, P. J. Tobin, H. A. Pressler, D. M. Campbell, T. J. Foster, A. W. Smith, C. G. Glendenning, F. J. Pilon, C. C. Mills, G. H. Caldwell, A. T. Peters, and Dr. L. J. Tillou of East Aurora, N. Y.

ANTHRAX FROM SHAVING BRUSHES

Because of several cases of anthrax in New York City recently and the death of one prominent man, an order was issued by the Health Commission to all dealers in bristles to submit their stocks to the Health Department for sterilization. The death was said to be directly traceable to the use of a recently purchased shaving brush. Several recent cases of anthrax in Brooklyn were traced to a consignment of bristles brought from China. Sterilization of all bristles by boiling at least two hours is recommended.

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Army Veterinary Legislation

ALMOST since the inception of the veterinary corps of the National Army we have devoted from two to five pages monthly to the record of its achievements and news concerning it. No other veterinary journal in the world has given one-fifth this amount of publicity to the veterinary corps of any army. Our readers, both in the army and out of it, have formed a pretty accurate conception of the veterinary corps of our army and what it did and how it did it. All take a great deal of pride in its record.

With all its record of hard work commendably done it suffered under many handicaps, it made not a few mistakes, it was imposed upon by other departments of the army in numerous instances, and the individuals comprising it were subjected to many disappointments. Most of the improvements that are desirable in the reorganization of the veterinary corps—a reorganization seems certain—require remedial legislation. Doubtless the veterinary profession through the A. V. M. A. or otherwise will undertake soon to obtain such legislation. An effective campaign for this legislation must have the earnest and united support of the whole profession. This can be obtained just in proportion as the understanding of the need for the changes asked is general.

With the war over and hundreds of the veterinary officers already returned to the pursuits of civil life, the time for a discussion of these matters and a campaign of education for the needed improvements is at hand. To this end contributions from those having constructive ideas upon these matters is invited. In this issue a sort of preliminary statement is given of conditions at Camp Lee that ought not to recur. The treatment of veterinarians in the enlisted personnel at Camp Greenleaf and the delay in, and final unsatisfactory organization of the veterinary corps overseas are matters upon which the profession in general should be thoroughly informed before its support for remedial legislation is asked. The organization in Washington with a medico as Director of Veterinary Service, the selections for early promotions on this side and the failure to give promotions overseas are matters that should be better understood before their correction is undertaken. In this connection we should bear in mind that the military establishment is the creature of the law. Without the law it cannot and does not exist. It performs its every function by explicit authority of law. When an individual officer acts in the guise of carrying on his lawful functions but actually not under the specific authority of law, his acts are not those of his office. They are his own individual acts for which he is personally responsible. Let no man palliate or endure the misconduct of a superior officer under the fallacy that he owes loyalty to the individual who holds an office. The true loyalty is to the office. To expose the wrongs committed and fix the onus where it belongs, is truly defending the service and helping to restore and maintain it free from abuse. Such is a patriotic service.

Army Veterinary Corps Miscellany

A RECENT weekly bulletin from the Chief Veterinarian's office of the A. E. F. says: "The Chief Veterinarian on an inspection trip of the veterinary hospitals of the advanced section desires to commend the veterinary hospitals at Longuyon and Verdun for the excellent results they have produced in the face of great difficulties."

The Longuyon Veterinary Hospital contains at present 1,200 animals. There is room for 1,800. The chief affection is mange, although mud fever is of almost equal concern. The camp of the Longuyon Veterinary Hospital Unit No. 17, occupies about thirty acres of what was once a French army post.

Major H. G. Beauman, formerly assistant in the surgical department at the Kansas City Veterinary College, is in command of this hospital unit. Longuyon is fifty miles northeast of Verdun and about ten miles from the Luxembourg border. The advance party of Major Beauman's unit crossed No Man's Land and arrived in Longuyon Dec. 6, 1918, and commenced the removal of the material left behind by the Boche, to date comprising more than six thousand loads. The organization comprises twenty-three officers and twelve hundred men and all admit their present task is the largest they ever tackled. The above official commendation is evidence of the success with which they have handled their difficult task.

Major G. A. Hanvey has just joined the 88th Division as Division Veterinarian after a strenuous ten weeks at Veterinary Hospital No. 5. The following report of the work at Veterinary Hospital No. 5 during those ten weeks gives some indication of the tasks the veterinary officers are confronted with overseas.

HEADQUARTERS VETERINARY HOSPITAL 5.
JEANNE D' ARC CASERNE, TOUL, FRANCE.

January 25, 1919.

Summary of work at Veterinary Hospital No. 5, Nov. 13, 1918, to Jan. 25, 1919.

Number of horses and mules on hand Nov. 13	525
Number of horses and mules received Nov. 13 to Jan. 25, 1919	2,113
Number died and destroyed	113
Number condemned and sold	226
Number returned to duty	326
Number evacuated to other hospitals	943
Number on hand	1,030

C 139—A 518 AA 281. W50 L 39. P 4.

Total number of animals received at this hospital to date	7,375
Number evacuated and issued to date	5,902
Number died and destroyed to date	530
Number I. C.'d and sold to French	323

Principal diseases: emaciation, mange, and foot troubles, quittors, calk wounds, pricks, etc.

Animals dipped Jan. 13 to 23 = 2,500 + ins. R. M. S. 304 350.

Conditions are improving, however, in every part of the territory occupied by the American army and affairs are running in much better shape. The work with the animals is less strenuous and there are better facilities for taking care of them at the present time.

Previous to Major Hanvey's arrival at Veterinary Hospital No. 5, it was used only for evacuation or as a rest station for shipping the animals farther to the rear. Major Hanvey has just installed a dipping vat for the 88th Division Veterinary Hospital and has dipped 2,500 animals in the two weeks of its operation. To him, dipping appears to be the only practical way of handling mange and other skin troubles in the A. E. F. Usually after a single dipping the animals cease to scratch, gain in flesh rapidly, and are soon ready for reissuing. He uses the lime and sulphur dip at a temperature of 102° Fahrenheit, allowing the animals to stay in the dip for two minutes, giving much additional hand treatment to the head and ears and spraying these parts until all evidence of the disease disappears. He finds hand rubbing and brushing as the animals come out of the dip to be of no advantage and a waste of time where many cases are to be treated.

Major Hanvey has found a horse show in which competitive prizes are offered for the men keeping their animals in the best condition, to be a great help in getting better work out of his men, who are largely negroes from Virginia. He believes the training they are getting will be of much benefit to them when they return to their farms.

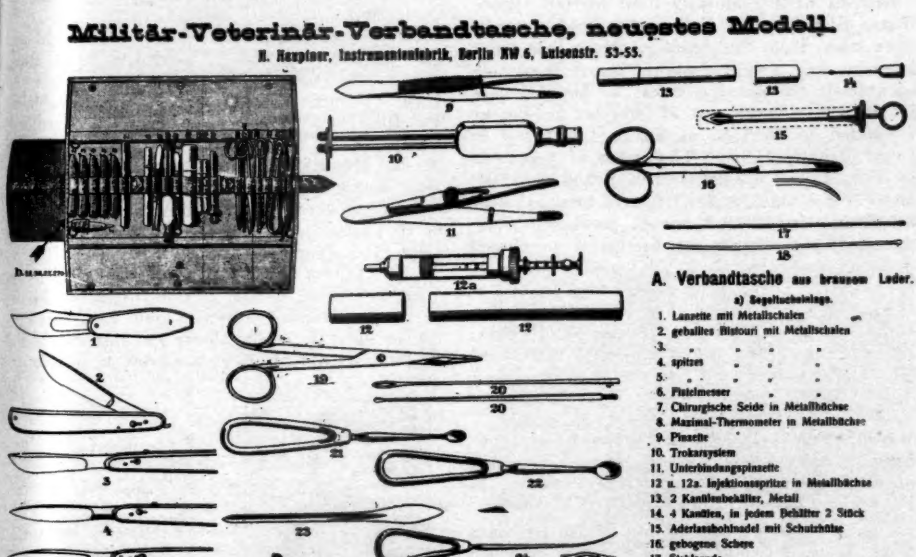
Col. D. S. White has returned from overseas, been discharged from the army and resumed his duties as dean of the Veterinary Department of the Ohio State University. In an address to the Northwestern Ohio Veterinary Association in Toledo recently, he had many interesting things to say of the veterinary organization overseas and spoke with enthusiasm of the prospects for a reorganization of the veterinary corps.

The uncertain condition in which the failure of the army appropriation bill left the entire military establishment is shared by the veterinary corps, and until the inevitable extra session of congress progresses far enough for the military authorities to ascertain what is to be the policy of the Republican majority in congress, the veterinary corps will drift along about as at present, compelled by force of circumstances to take care of the horses which the army has on hand, and unable to do any intelligent trimming until the general military policy is more definitely outlined.

Half a Million U. S. Mules in France

Mules are in favor as draft animals in the war operations in this country and in western Europe. The exports during the war, undoubtedly for war purposes, were about 350,000 mules in place of a normal export of probably 22,000. The shipments overseas by the War Department numbered about 29,000 mules, and at about the end of 1918 approximately 100,000 were in the service of the War Department in this country. Therefore, nearly 500,000 mules, the Bureau of Crop Estimates says, were supplied to the War Department and the Allies by the farms of this country for war service.

Comparison of mules with draft horses is interesting. The War Department shipped overseas about 29,000 mules and 33,000 draft horses, of both of which only 600 were lost en route. That department bought 29,000 mules in France, Great Britain, and Spain, and 123,000 horses for all purposes, the draft horses not being separately reported. On Dec. 25, 1918, there were on hand with the American Expeditionary Forces 56,000 mules and 110,000 draft


Militär-Veterinär-Verbandtasche, neuestes Modell.
H. Haupner, Instrumentenfabrik, Berlin NW 6, Luisenstr. 53-55.
A. Verbandtasche aus braunem Leder.
a) Segeltuchbeilage.
1. Lanzette mit Metallschalen
2. geballes Bistouri mit Metallschalen
3. " " "
4. spitzes " " "
5. " " "
6. Pinselmesser " "
7. Chirurgische Seide in Metallbüchse
8. Maximal-Thermometer in Metallbüchse
9. Pinzette
10. Trokarsystem
11. Unterbindungspinzette
12 u. 12a. Injektionsspritze in Metallbüchse
13. 2 Kautilenbehälter, Metall
14. 4 Kanülen, in jedem Behälter 2 Stück
15. Aderlaßbohrnadel mit Schutzhülse
16. gebogene Schere
17. Stahlsonde
18. Elastische Sonde
19. Kornzange, zugleich Nadelhalter
20. Schraubsonde, zweiteilig
21. Scharfer Löffel, klein
22. " " " groß
23. Myrthenblatt- und Hohlsonde
24. Heftnadel nach Cierlach
25. Lederläppchen
26. Neusilberröhrle
27. 6 Heftnadeln mit Patentöhr
27b. 1 Lederbächchen für Heftnadeln und Röhre

A GERMAN ARMY VETERINARIAN'S POCKET INSTRUMENT CASE.

The above illustration is a most interesting one. The "surgical dressing pocket" and the instruments shown separately were obtained by the first American aviator to land in Metz immediately after the evacuation of the city by the Germans, following the armistice. It had been left in one of the barracks and was picked up by the American aviator, from whom it was obtained, in his search for souvenirs.

The instruments are larger than the instruments of similar type of American manufacture and of splendid quality. The case is of solid leather and the lining, linen duck. The whole is neatly made and apparently almost new. The set of trocars and canulae seem cumbersome and inconvenient. The hypodermic syringe and the cutting instruments are of particularly fine quality. The suture material, the hypodermic syringe, the hypodermic needles (of which there are four) and the thermometer (Centigrade) are in separate aluminum cases. The lance (No. 1) has two cutting edges.

horses, and the War Department had on hand November 2, 1918, 162,000 mules and 186,000 draft horses.

In the operations of the United States Expeditionary Forces overseas to Dec. 25, 1918, the total loss of animals was 42,311, which included 36,189 horses and 6,122 mules.

67,948 Animals Sent Overseas

In a statement made by the War Department it appears that since the United States entered the war and to Jan. 11, 1919, this Government shipped overseas from this country 67,948 animals, which included 5,489 cavalry horses, 33,396 draft horses, 28,088 draft mules, and 975 pack mules. The total number of animals lost en route overseas so far reported is 600 horses and mules, or less than 1 per cent of the total number of animals shipped.

Army Animals Bought Abroad

Not all of the animals used by the United States Expeditionary Forces in overseas service were taken from this country. More than twice as many were bought abroad. The total number of animals purchased overseas to Jan. 11, 1919, is 152,336. Purchases of horses in France amounted to 109,848; in Spain, 1,531; and in Great Britain, 11,898. The value of purchases in France was $43,122,094; in Spain, $589,160; and Great Britain, $5,314,711, or a total value of $49,025,965 for 123,277 horses purchased overseas. The total number of mules purchased overseas amounted to 29,059, with a value of $11,115,847. There were 9,341 mules, valued at $2,895,928, purchased in France; 12,941 mules, with a value of $5,619,156, purchased in Spain; and 6,777 mules, valued at $2,600,763, purchased in Great Britain.

Lieut. Frank G. Lillyman, formerly of Binghamton, N. Y., now with the 3rd U. S. Army of Occupation, 315th Ammunition Train, A. E. F., France, has 457 animals under his care.

Captain J. Gregg, late of the British Remount Commission, Newport News, Va., has returned to England.

Captain A. Gillespie and Dr. G. Gregory, also of the British Remount Commission, are in Chicago for a short stay at the Gregory home.

Lieut.-Col. C. J. Marshall has resigned as assistant director of the veterinary corps and resumed his former duties as state veterinarian of Pennsylvania.

Dr. S. Glover, late captain of the R. V. C., British Remount Commission, has taken over the practice of Dr. Wood, Greensboro, N. C., who has gone to Charlottsville, N. C., to take charge of the practice of his brother, who died recently.

Dr. O. A. Meyer is now with the American Army of Occupation in Germany.

Recent Assignments, Transfers, Etc.

Lieut. F. Severovic, Horseshoers' School, Remount Sta. No. 1, Ft. Sam Houston.

Lieut. Bernard Johnson, Post Veterinarian, Ft. Monroe, Va.

Lieut. J. M. Arbuma, Vet. Hosp. No. 10, A. E. F., Bourbonne-Les-Bains, France.

Lieut. J. M. Dunkelberger, Hdq. 78th Div., A. E. F., France.

Major R. C. Musser has been relieved as Division Veterinarian, 8th Div., and has been assigned as commanding officer, Camp Vet. Hosp. Camp Lee.

Other veterinary changes: Maj. E. B. Ackerman, to the surgeon-general's office for instructions; Maj. D. J. Lynch to Camp McClellan; Maj. J. R. Scully to Ft. Sill; Capt. J. R. Maffey to Ft. Sill; Capt. J. F. Crosby to Camp Grant; Capt. H. A. Gould and O. L. Campbell to the surgeon general's office; Capt. M. B. Lamb to Camp Bowie; Capt. N. Beeman to Camp Meade.

First Lieuts. J. L. Hartranft to 44th field artillery, Camp Stanley; T. B. Howie, R. B. Rath and F. M. Wilson, to commanding general, A. E. F., France; C. A. Fast, F. R. McNabb to Ft. Bliss; C. O. Petry to 81st field artillery, Camp Knox; C. S. Williams to Camp Knox; F. E. Metcalf, Jr., to Camp Taylor; F. T. Bear to Camp Sheridan; I. W. Parks, to commanding general, Camp MacArthur; J. E. Miller to Camp Upton; E. C. Martindale to Camp Lee; F. G. Ward to 11th Cavalry, Camp Hearn; J. H. O'Brien to 1st Cavalry, Douglas, Ariz.

Colonel G. E. Griffin, Senior Instructor in the veterinary training camp, Camp Lee, has recently spent a ten-day leave of absence in the hospital, as the result of a minor surgical operation.

LT. J. J. GLOVER

The accompanying snap shot of 1st Lt. John J. Glover, V. C., was taken at Camp Travis before going overseas. Dr. Glover recently received his disability discharge, having returned to the United States Dec. 24, from France, where he had been since June, 1918. He was in the lines sixty-two days, thirty-eight days at St. Mihiel and twenty-four days at Verdun in the Argonne battle, where he received a wound in the left shoulder from a high explosive shell and was gassed soon afterward while sleeping in a hole in which mustard gas had settled. He was in six hospitals in France and two in the United States. He was commissioned July 16, 1917, and trained with the 90th Division, Camp Travis, Tex.

Captain W. E. Muldoon, V. C., to Camp Lee, Petersburg, Va., for duty as instructor in the Infantry Officers' School.

Captain L. Levenson, relieved from duty

Col. David S. White, who has returned from overseas, received his discharge and resumed his duties as dean of the Veterinary Department of the Ohio University.

Camp Las Casas, San Juan, P. R., to proceed to U. S.

First Lieut. J. A. McCallan to Ft. Ringgold.

First Lieut. T. Schondau, V. C., to Fort Bliss, Texas.

First Lieut. J. G. Fuller, 8th Cav., Marfa, Texas; First Lieut. R. L. South, from 8th Cav., Marfa, Texas, to C. G., Southern Department for instructions; First Lieut. G. W. Lies from duty with 16th Cav., Mercedes, Texas; First Lieut. C. E. Pickering, Mercedes, Texas, 16th Cav.

Officers of V. C. to Camp Travis, Fort Sam Houston, Aux. Remount Depot No. 329, for duty: First Lieut O. A. Diller; Second Lieuts. R. A. Showaller, A. P. Sturrock, L. V. Wolker.

Captain H. H. Howe to Camp Sherman, Ohio; Captain F. B. Gage to Camp Lewis, American Lake, Wash.; First Lieut. C. A. Fast to Fort Bliss, Texas; First Lieut. F. R. McNabb to Fort Bliss, Texas, with the 15th Trains and Military Police.

The following officers of V. C., now in France with the A. E. F., relieved from station with the 5th Replacement Unit, Veterinary Training School, Camp Lee, Va., to report to the commanding general, A. E. F., France, for duty: First Lieuts. C. M. Faulkner, G. J. Jarvis and J. D. Phelan.

Captain E. C. Jones, V. C., to Fort Oglethorpe, Ga.

Dr. J. C. Green, formerly stationed at Kennett, Mo., is now engaged in tuberculosis eradication work in Wisconsin, with headquarters at Madison.

Movements of Returned Army Men

Having just returned from overseas and receiving honorable discharge after spending the past eighteen months in the service, Dr. John C. Nash, formerly of Pella, Ia., is temporarily located at Oskaloosa, Ia.

Dr. Harry Orr, late of the army, has located at Charles City, Ia.

Following his release from the service, Dr. E. C. Goodrich, formerly of St. Joseph, Mich., has purchased a farm at Lawton, Mich., where he expects to spend the greater part of his time, henceforth.

Captain Ernest W. Hogg is still with the forces overseas, where he has been with the 79th Division, A. E. F., since July, 1918.

Dr. W. F. Joseph has returned to his practice at Iroquois, S. Dak.

After serving in France with the veterinary replacement Unit No. 43, A. E. F., Dr. J. Chalmers has returned to his practice at Grant, Ia.

Following his return from the front, Dr. E. Salisbury, late captain in the Canadian veterinary corps, has returned to his practice at Toronto, Ont.

MAJORS E. B. ACKERMAN AND R. M. STALEY.

Majors Ackerman and Staley are the glanders experts of the army. Among their most important duties at this time is making certain that the army horses offered for sale at the remounts in the Southeastern Division are free from glanders and will not carry this disease to the civil population. Major Ackerman was sent to Camp Greene some weeks ago to clean up the glanders there, which has existed ever since its establishment, it being the only camp in the United States having that unenviable record. Major Ackerman eradicated the disease in a few weeks but did not permit the sale of any of the horses until all the horses in the remount had passed three mallein tests in succession without a reactor in entire lot.

Dr. H. V. McCullah, late captain in the veterinary corps and camp veterinarian at Camp Fremont, Calif., is now veterinarian for the Monte Vista Hog Growers' Association at Center, Col.

Dr. L. A. Carey has returned to his practice at Athens, Mich. He says: "I was in that unlucky bunch of veterinarians in the personnel at Camp Greenleaf, who were called 'birds' and sent home as privates. You perhaps have heard a great deal about it by this time. Our occupation down there was none of the best, especially for veterinarians, graduate men who should have been given a commission at least and had some consideration shown them."

Dr. Bert Sanders has returned to Georgetown, Ill.

Dr. Harne Frank, following release from military duty, has returned to his practice at Jewell City, Kan.

Lieut. J. S. Davis has been transferred from Veterinary Hospital No. 301, Newport News, Va., to Camp Sherman, Chillicothe, O., as assistant camp veterinarian.

Dr. G. H. Leenerts has returned to his practice at Humphrey, Neb., having been honorably discharged from service.

Dr. Fred Middleton, recently released from service, has taken over the practice of his brother at Grundy Center, Ia.

Dr. George A. Johnson has returned to his practice at Swea City, Ia.

Dr. Jas. Spencer has returned to his practice at Woodward, Ia.

Dr. R. S. Huff has located at Newton, Ill.

Dr. D. L. Smathers has returned from service and has formed a partnership with Dr. W. B. Robinson at Mt. Sterling, Ky.

Dr. L. R. Noyes has located at Cottonwood Falls, Kan.

Dr. Haasjes has located at Kalkaskia, Mich.

Dr. R. L. Gilliam has located at Oakesdale, Wash.

Dr. C. R. Kinnison has located at Chillicothe, Mo.

Dr. R. J. Nicol has resumed his practice at Lebanon, Oreg.

Dr. J. R. Hoop, formerly at Selma, Cal., has located at Fowler, Cal.

Dr. Arthur H. Berntswiller has located at Astoria, Oreg.

Dr. H. R. Whittaker has returned to his practice at Fayetteville, Tenn.

Dr. P. A. Weires has returned to his practice at Allison, Ia.

Dr. Sam Espey has located at Hope, Ind.

Dr. J. H. Kritchel has returned to his practice at Alexis, Ill.

Dr. J. T. Campbell has located at Williamsfield, Ill.

Dr. A. F. Wempe has resumed his practice at Marysville, Kan.

Dr. H. T. Ludwig, late of the meat inspection service, is engaged in B. A. I. inspection, Oklahoma City, Okla.

Dr. W. N. Fitch has located at Bennett, Ia.

Dr. Ray D. Miller has located at Van Wert, O., following his discharge from the service.

Following his return from overseas, Dr. W. H. Kern has resumed his practice at Winston-Salem, N. C.

BOOK REVIEWS

Farriers' Manual

Committee on Education and Special Training, War Dept., Washington, D. C.

Since present-day conduct of war depends to a great extent upon technical and scientific knowledge, much training along special lines is found necessary in order that the general usefulness of the soldier be increased and utilized to the fullest extent. In conformance with this well-recognized need, this manual was prepared as an aid in teaching farriers.

Throughout the 45 lessons or "Tasks," the principle of teaching by doing has been adhered to, charts, drawings, and actual specimens having been used to keep the problem under discussion clearly defined in the mind of the student.

The lessons are printed on separate sheets. The subjects discussed are practically dealt with and provide an accurate working knowledge of the principles underlying the general care and treatment of horses.

A surprisingly broad range of subjects are included in the lessons among which are: Anatomy, especially of the foot; actions and uses of medicines; anesthesia; bandaging; care of stables; classification of wounds, hypodermic injections; emergency tables, etc., etc. In fact almost every branch of the care of horses is dealt with briefly. One who could answer all the questions on the sheets might be considered to have a liberal knowledge of the horse which would fit him well for his work as trained assistant to the veterinary officer in the care of sick and injured animals. The committee is to be congratulated on the thoroughness with which they have covered the subject.

DEPARTMENT OF

BOVINE PRACTICE

Edited by JOHN FRANCIS DE VINE, D. V. S.

Puerperal Infections

IN reviewing the works of various authors on veterinary obstetrics we find listed under puerperal infections, several diseases or conditions closely associated with, or inseparable from the puerpera. We also find listed other pathological conditions which unfortunately with our present knowledge cannot be said with a certainty to truly and technically belong in this category.

Clinically it is usually impossible to clearly distinguish between a retention toxemia and an infection or bacteremia. This being so, with our limited knowledge of such ailments as are styled parturient paresis and puerperal eclampsia, it would seem that one is hardly justified in attempting to classify these ailments or discuss their etiology. Even their treatment, with our present knowledge, is largely empirical, but fortunately parturient apoplexy is one of the rare exceptions where we get results from treatment without knowing why. We might justify our discussion of these maladies on the plea that our errors in deduction or our varying views may be the means of creating a discussion or investigation that will guide us to the path of real knowledge.

Parturient apoplexy, which is placed in this classification by some, cannot be looked upon as a true infection if we give any credence to the contributory causes that various authors associate with it. We will note that certain feeds, deep milking, high in flesh, shock or nervous excitement are all accused of playing a part.

Another logical argument against the probability of it being an infection in the true sense of the word, is the fact that it occurs in cases where the cow to all appearances has been enjoying ideal health, apparently digesting and assimilating a sufficient amount of nutrition and all organs performing their functions of elimination in perfect harmony, in what we call health. The cow subject to milk fever is in good flesh, not ordinarily excessively fat, her eyes are bright, her coat slick, and even the act of parturition is apparently ideally physiological; in most cases the membranes pass and the uterus contracts promptly, therefore we have all the natural conditions we look upon as desirable to protect from handling and infection or even a toxemia.

Franck[1] even goes so far as to dissociate it entirely from parturient infections or toxemia, as he asserts it has been known to affect oxen and other domesticated animals, though seldom. I cannot concur in this opinion, however, as to oxen, but rather believe there has been an error in diagnosing other conditions which simulate parturient paralysis very closely, particularly vacuity of the rumen and paralysis associated with digestive disturbances. Again, the treatment this ailment responds to, would apparently argue against either infection or toxemia.

Likewise it is a question whether or not puerperal eclampsia belongs to this class of puerperal infections, since, like parturient paralysis, it may even occur prior to parturition, and in the absence of positive knowledge as to its nature it could be looked upon as a nephritic toxemia, hepatic toxemia, cerebral toxemia, or primarily a nervous *affection* rather than an *infection*. However, it seems as logical to discuss these conditions under this heading as elsewhere, with the full knowledge that within a brief period our present views may be looked upon as unlearned and ridiculous, a fate that is rightly due any conclusions that are not based on indisputable facts.

[1]Geo. Fleming, F. R. C. V. S., Vet. Obst., page 657

Parturient Apoplexy

SYNONYMS: Post-Parturient Paresis, Parturient Paresis, Milk Fever, Calving Fever, Puerperal Fever, Puerperal Collapse.

Of all these synonyms the first, parturient apoplexy (congestive apoplexy), or the last, puerperal collapse, or the term puerperal paralysis, are perhaps the best, since its clinical behavior precludes true paresis. Milk fever, calving fever and puerperal fever are misnomers, as it is an afebrile disease and the fact that it may occur prior to parturition makes the term post-partum paresis erroneous.

This ailment has the peculiar distinction, while surrounded with mystery as to its cause and pathology, of having been robbed of its terror by more or less of an empirical remedy. Writings on the subject seem to have had their origin with the improvement of dairy breeds and all the information gathered on it for the last century tends to strengthen the belief of the present time, that cows styled deep-milkers are most susceptible to it. However, it has been diagnosed in cows of distinctly beef breeds.

Fleming[1] states that the malady appears to have been known from an early period, but the first exact description of the symptoms we can find is that given by Skellet (Practical Treatise on the Parturition of the Cow. London: 1807) who calls it "milk fever" or "dropping after calving." In the following year it was alluded to by Jorg (*Anleitung zu einer ration ellen beburtshulfe, etc., fur Thierazzte*), who evidently knew of Skellet's work, as the latter's plates are copied. Some years after this period the disease began to attract much attention, as with the improvement in the breeding of cattle it gradually became more prevalent, until now the literature on the subject is very extensive.

With the possible exception of azoturia in horses, probably there is no animal disease on which there is such a voluminous literature as to its probable etiology and pathology, as on this ailment of the cow, but none of the theories yet advanced are entirely tenable and to discuss them all would be delving into theories to no advantage. Hutyra and Marek[2] sum up briefly the numerous hpotheses which are advanced and state:

[1]Fleming's Obstetrics, page 656.
[2]Hutyra and Marek, Vol. 11, page 850.

"Recently many veterinary surgeons have been inclined to accept the hypothesis of the existence of an auto-intoxication. Ehrnhardt and Albrecht held the view that protein substances collected in the tissue of the mother animal and utilized by the fetus during pregnancy, may after birth be changed into material having a toxic effect. Eber's view was that a toxic substance originated in the pregnant uterus, which was changed into a poison by the active metabolism in well nourished, vigorous cows, while Mamadyxchky claimed uremia as the cause, because he found albumen in the urine of sick cows, also renal elements, and on histological examination changes pointing to nephritis.

Schmidt (of Kolding) on purely theoretical grounds puts forward a new intoxication theory, according to which the origin of the formation of the poison is in the udder. Originally he believed that the poisonous material developed through the decomposition of the colostrum corpuscles, which he believed to be the epithelial cells; later he assumed that toxins developed in the udder in some unknown manner, which after absorption into the blood produced a poisoning of the whole system. According to Sonneberg the milk contains substances which have a toxic effect on rabbits, the amount increasing in parturition paresis. Hemprich imputed an intoxication to certain combinations of proteins that are not used in the milk secretion, while according to Meyer and also to Leclainche, the causes of milk fever might be sought in certain poisons formed in the body and only incompletely excreted through the udder. Finally, Delmer accuses the absorption of poisonous material from the udder which is formed there by the disintegration of protein substances, stimulated by some proteolytic ferment. In favor of this hypothesis the cause of illness similar to parturient paresis, but which develop independently of parturition may be cited."

Occurrence

While by far the greatest majority of cases are so intimately associated with parturition, that is, occurring within a few hours to forty-eight hours after parturition, still occasionally it occurs before calving and not infrequently a considerable time thereafter. During the spring of 1906 I had seven of what might be termed delayed cases, that varied from one to three months after calving. These all occurred in cows

that were on pasture during the wet spring season, when the pastures were unusually luxuriant and the milk flow had thereby been rather suddenly and considerably augmented. These animals presented all the symptoms that characterize the ailment and no other symptoms so far as our present knowledge of this disease will permit us to judge, and all responded to the usual treatment. This with subsequent experiences has proved rather conclusively to me that we may and do have cases of puerperal paralysis more remote from the date of calving than our present literature would indicate.

According to some, such cases are not true puerperal paralysis, but probably digestive paralysis. We will give our views on this question under "Differential Diagnosis." Others state that this condition does not occur at all before the membranes have been expelled. Obviously this cannot be true when it occurs before parturition, and my experiences have been otherwise in some cases occurring after parturition.

I recall being consulted by telephone one evening relative to a sick cow, the history as given over the telephone indicating a case of parturient paralysis. Within a few minutes, before leaving my office, I received another urgent call to give attention to a horse suffering acute pain. On arriving at the place where the cow was I found a high-grade Jersey that had calved that morning, manifesting all the symptoms of parturient paralysis, the afterbirth retained. Without giving any attention to the membranes I hurriedly inflated the udder and explained to the owner the urgency of the call a few miles away and promised to return as promptly as I could to give further attention to the cow. I returned in about two hours and found the cow sitting up, quite conscious, with the uterus everted and the afterbirth adhering to many of the cotolydons. The membranes were removed, the uterus cleansed and returned to its normal position and the cow promptly recovered without further mishap. According to statistics collected by Jensen[1], in 1,107 cases, 4.24 per cent. occurred before birth, and the remainder after birth. Of the latter,

2.53 per cent. began after one to three hours.

3.9 per cent. after three to six hours.

13.09 per cent. after six to twelve hours.

14.27 per cent. after eighteen to twenty-four hours.

10.29 per cent. after twenty-four to thirty hours.

8.40 per cent. after thirty to thirty-six hours.

3.70 per cent. after thirty-six to forty-two hours.

6.77 per cent. after forty-two to forty-eight hours.

5.42 per cent. after more than forty-eight hours.

Hess observed no cases occurring more than ninety-six hours after parturition, although there are records in the literature where the disease was said to have occurred much later, as long as ten days after parturition (Harms), but such cases may have been confounded with other diseases, as is suggested by the investigations of Guillebeau and Hess.

Harms, quoting Haycock, gives the following duration of time after parturition at which parturient paresis made its appearance:

5 times immediately after calving.
8 times 20 hours after calving.
5 times 23 hours after calving.
5 times 24 hours after calving.
3 times 30 hours after calving.
2 times 36 hours after calving.
1 time 42 hours after calving.

Type of Animals Affected

As we have said, this ailment seems to elect such animals as might be styled choice dairy animals, in an ideal condition and at the most useful age. I have never seen and am unable to find any record of it attacking primiparae and rarely does it attack the cow that is on the decline from age. Williams[1] quoting Harms as citing Bavarian statistics, gives the following table of the age at which 127 cows were attacked with milk fever.

At the age of	3 years	1
At the age of	4 years	4
At the age of	5 years	20
At the age of	6 years	14
At the age of	7 years	22
At the age of	8 years	18
At the age of	9 years	22
At the age of	10 years	12
At the age of	11 years	3
At the age of	12 years	6

[1]Huytra & Marek, Vol. 11, page 849.
[1]Williams' Obstetrics, page 611.

At the age of 13 years 2
At the age of 14 years 1
At the age of 15 years 2

Parturient paralysis does not ordinarily attack the animal that aborts, gives premature birth, or suffers severely at the time of parturition, but rather the reverse. The cow that carries her calf full term, has an apparently easy and normal birth, promptly expels the membranes and presents all the prospects of a profitable lactation period. Neither is it the cow that is badly nourished or the beefy one with the undeveloped udder that suffers most, but rather the one that is in good flesh and has developed a milk system that is sought for and desired. (Symptoms and Differential Diagnosis will follow in the next article.)

Queries and Answers

Traumatic (?) Pericarditis in a Cow

I should like some information on a case that recently came to my attention. This cow had been sick about three weeks before I saw her and had been treated by another veterinarian, who after treating her about two weeks gave up saying that he did not know what the trouble was. When I first saw the cow she was down and unable to rise. She seemed to be in a semi-comatose condition, breathed hard and very short and groaned once in every dozen breaths, and gritted her teeth every few minutes. The owner said the cow had not eaten anything, to his knowledge, for two weeks but had drunk about a quart of water once a day but for the past three days had not drunk anything. There was no marked rise in temperature (102.3°); pulse almost imperceptible, horns cold and muzzle cold and dry. She lay in practically a normal position. An edematus swelling on the brisket was due I thought to her lying down so long, as the owner said he had just seen it the day before. The cow seemed sore when pressed between the ribs and I said I thought she had pneumonia and was about ready to die. The feces passed were semi-liquid, very dark and foul smelling. She had been given a dose of salts by the other veterinarian and owner said it had acted, but still the rumen felt hard to me.

I left fluid extract, cascara sagrada, to be given in small doses, also a few tablets of barium chlorid and tartar emetic with some intestinal antiseptic tablets. I left some spartein sulphate for a heart stimulant, and a mustard paste was spread over the lungs and rumen.

The animal died three days later and on postmortem an abscess about the size of a water bucket was found involving the whole of the pericardium and a portion of the lung and attached to the sternum. The abscess contained a pale cream-colored substance, almost liquid and exceedingly foul smelling. No foreign body could be found. The rumen was almost filled with a large amount of very dry food.

As I could find no foreign body and no abrasion, I am puzzled as to the cause of the abscess. As the pericardium was green and as we say "rotten" and about a quarter of an inch thick, it was evident the abscess had been there for some time, but how could any animal live a month with an abscess encircling the entire heart? I should like to have an explanation as to how this abscess started and how the cow could live as long as she did. The appearance of the other organs indicated that the cow really died from a toxemia. Any light on this subject will be greatly appreciated.—F. G. R., Mass.

REPLY: The case is a very typical one of pericarditis due to a foreign body, except for your failure to find the foreign body, which might lead one to think of pericarditis due to another cause. But if the object penetrating the heart sac was small or the nature of it such as to be dissolved in the course of several months, the failure to find it is easily explained.

That an object could traverse the tissues from the pericardium to the heart without leaving a visible tract is not extraordinary. In fact it is of rather frequent occurrence. Undoubtedly a small scar is left, but in the course of time it becomes so nearly obliterated that it is almost impossible to find. Ordinarily these conditions continue for many months and the length of time your case ran is by no means unusual. It is always difficult to say when the trouble began. Cases have been re-

ported where it seemed reasonably certain that it was eighteen months after the foreign body was ingested before death resulted. These cases not infrequently run from four weeks to three months after the symptoms are noticed. It is possible that an examination of the heart would reveal an accumulation of pus for many weeks or months before the appearance of symptoms.

REMOVAL OF WARTS.

I would like some information relative to the removal of warts from horses and mules. —G. L. B., Va.

REPLY: The warts that appear to grow from the surface of the skin and are often present in great numbers, may usually be removed by the local application of castor oil, crude oil and other lubricants, castor oil being probably preferable.

Some practitioners favor the local application of arsenical paste—arsenic trioxid and flour in proportion of one and four, adding enough water to make a paste. Three or four applications are usually sufficient. If the warts are large they may be removed with scissors and hemorrhage controlled with the cautery. In more difficult cases the internal administration of physiological doses of Fowler's solution of arsenic may be employed in connection with the local treatment. As much as one ounce may be given daily for a week.

Pedunculated warts are ordinarily removed by placing rubber bands tightly stretched around the base. Other growths, sometimes called warts, that have their source deeper in the tissues, usually require surgical removal, followed by caustic applications. Not infrequently such tumors are malignant and their treatment offers many difficulties.

CASTRATION PITFALLS

Although I give special care to asepsis and antisepsis in castration, I sometimes do not have the best success. I use both the standing and recumbent positions, always making free incisions to allow ample drainage. Some of the colts develop considerable swelling in the scrotum, others in the prepuce, and in some cases the penis becomes greatly swollen, resulting in phimosis. Primary hemorrhage results in about ten per cent of my cases. I castrate in the late spring or early fall, and employ ten per cent sterile camphorated oil in the scrotal incisions. Can you tell me where I am wrong?—H. R. C., O.

REPLY BY DR. J. V. LACROIX: Post-operative swellings are due to infection which gains entrance into the wound at the time of operation or subsequently, and consequently if the instruments are sterile and the operator's hands clean and the castrated animals are not allowed to remain in filthy stables or pens immediately after castration, no swelling of consequence ordinarily results where a suitable incision for drainage is made. The only exception to this is in cases where animals are devitalized and prone to suffer edematous swellings because of a sluggish circulation, or where animals are exposed to inclement weather several days at a time after having been castrated and because of lack of exercise together with the devitalizing effect of cold weather, swellings may result. The use of oils whether antiseptics of any kind are incorporated or not, serves no good purpose ordinarily. The only good that occasionally results from such practice is that primary union of the scrotal incision may be prevented in cases where the depths of the wound have been contaminated during castration. In such instances, because of the fact that the oil and the adherent dirt prevent healing by first intention, there is no interference with the discharge of infected wound secretions and consequently a minimum of swelling results. The primary hemorrhage occurring in ten per cent of cases handled is of no moment unless, of course, hemorrhage is considerable in the animals that bleed. Since you have used so many different emasculators, and as bleeding occurs only in about one out of ten cases, hemorrhage is not to be attributed to faulty design of the instruments. While you do not so state, it is probable that this primary hemorrhage is venous in character and practically subsides as soon as the subject is allowed to rise from having been cast, or the bleeding is not profuse in those handled standing.

CEREBRITIS INDICATED

A case recently came to my attention, the history and symptoms being as follows:

The patient, a cow, was well in the morning; ate the usual food and gave the usual amount of milk. At noon when the owner went to feed the cattle, he noticed that in the feed trough where this cow was stationed there was a large amount of saliva. The cow was immediately taken away from the other animals and I was called, arriving about six o'clock in the evening.

The symptoms were as follows: profuse salivation; eyes blood shot; animal trying to bite everything within reach. When fed she chewed the food for a while and then spit it out, and she kept biting at her left shoulder. I was told that she would not drink, but in my presence she drank a pailful of water. Her throat was sore and she went down but was able to get up. Her temperature was 102.5°.

The symptoms being indicative of rabies, no treatment was advised until a more definite diagnosis could be made. The next morning a non-graduate was called and treated the case for pneumonia, although the symptoms noted above had disappeared. What is the diagnosis? —P. H. C., S. D.

REPLY: The symptoms described are not typical of rabies and of course the outcome of the case is not at all what would be expected in rabies. Cattle afflicted with rabies show little tendency to bite, but in addition to extreme nervousness, and an altered voice and almost constant bawling, they exhibit an uncontrollable

desire to charge animals and men and hook or butt them. This tendency is always made more noticeable by the presence of a dog or cat.

The case appears to be one of cerebritis and is not unusual in cattle that have access to moldy or fermented food. As in the case of mad itch, to which this case is quite similar, there are some who believe the ailment to be hemorrhagic septicemia, but this question is by no means settled.

AMENDMENT OF FEDERAL NARCOTIC LAW

What are the provisions of the federal narcotic law that affect veterinarians?

REPLY: The following taken from a bulletin issued by the American Association of Pharmaceutical Chemists, answers the above query:

Annual Taxes Increased. The following are the annual taxes which must hereafter be paid, to wit: Importers, manufacturers, producers or compounders, $24 per annum; wholesale dealers, $12 per annum; retail dealers, $6 per annum; physicians, dentists, and veterinary surgeons, $3 per annum. On or before March 26, 1919, every person and concern required to register and pay a tax under this law must register and pay the proportionate part of the tax due for the period extending from February 24 to June 30, 1919, and, in addition, on or before July 1, 1919, perfect the annual registration and pay the annual tax. Every person who imports, manufactures, compound, or otherwise produces for sale or distribution any of the affected narcotics is deemed to be an importer, manufacturer or producer. Every person who sells or offers for sale any of the affected narcotics in the original stamped packages is deemed to be a wholesale dealer. Every person who sells or dispenses from original stamped packages is deemed to be a retail dealer.

"BLUE VITRIOL" FOR PARASITES IN SHEEP

In a recent farm journal I noticed an article telling of the "blue vitriol" treatment for intestinal parasites in sheep. Can you give me any information as to what this treatment is and how it is used? Is it a permanent cure as the writer claims? Any information you can give me on the subject will be appreciated as the farmers in this locality will be expecting me to be informed on the subject.—C. M. M., Me.

REPLY: You will find the "blue vitriol" treatment for intestinal parasites in sheep discussed on page 212 of the May, 1918, issue of the AMERICAN JOURNAL OF VETERINARY MEDICINE. You will note by that discussion that the evidence does not justify the statement made in the clipping that you sent us. Fifty c.c. of one per cent solution of copper sulphate is an effective treatment for stomach worms in sheep. It has no effect upon the intestinal parasites.

EFFECT OF ACORNS ON PREGNANT SOWS

The manager of a range on which there are about one hundred pure-bred Hampshire brood sows, has served for a number of years as a forest ranger in the government service, and tells me it is quite a common occurrence for cows running on acorn land to abort, but he has not seen any harmful effects on does or mares. The Hampshires above referred to are running on an oak range and eating acorns. Two of the three cows on this range have aborted. Is there any danger in permitting the sows to have access to the acorns?

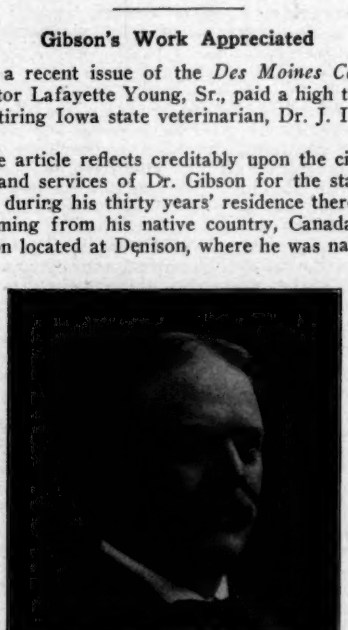
REPLY: No.

Gibson's Work Appreciated

In a recent issue of the *Des Moines Capital*, Senator Lafayette Young, Sr., paid a high tribute to retiring Iowa state veterinarian, Dr. J. I. Gibson.

The article reflects creditably upon the citizenship and services of Dr. Gibson for the state of Iowa during his thirty years' residence there.

Coming from his native country, Canada, Dr. Gibson located at Denison, where he was naturalized, married and spent sixteen busy years in practice. In 1906 he removed to Des Moines, and in 1911 was appointed state veterinarian, which office he has held continously until his resignation, which was effective March 1st.



Dr. J. I. Gibson, retiring Iowa State Veterinarian.

After April 1st, Dr. Gibson will be located at Bloomington, Ill., as state distributor of anti-hog-cholera serum and biologics for the Purity Laboratories, of Sioux City, Ia.

As announced last month, Dr. Gibson will be succeeded as state veterinarian by Dr. Robert D. Wall, his assistant for many years.

Department of Live Stock Poisoning

By L. H. PAMMEL, Ph. D., Ames, Iowa
Professor of Botany, Iowa State College

Readers are urged to take advantage of the opportunity offered by Dr. Pammel, for the identification of specimens of supposedly poisonous plants. Two good-sized specimens, carefully packed, should be sent to him direct, with such history as may be available. Simply mention that you are a reader of the AMERICAN JOURNAL OF VETERINARY MEDICINE and no charge will be made for this service.

Sorghum Blight

Dr. L. J. STRATTON of Odebolt, Iowa, sent me some diseased sorghum leaves and sheaths with the following letter:

"I am sending to you some specimens of sorghum cane which I would like to have you examine and let me know the significance of the red streaks which may be seen all through the cane. Is this anything which may poison stock fed on same?

"I was called today to see a cow which was very much bloated. The owner handed me this cane, saying that he had never before noticed this peculiarity in cane, althongh he had raised cane a number of years. A lot of the cane is pithy and has no juice. Much of it is red like the sample.

"So far, only one cow has been taken sick. She is very much bloated. This may not be the cause of the illness or bloating, but I just mentioned it. The owner wanted to know the reason of the discoloration and pithiness."

The red blotches on the sorghum are caused by a bacterium known as **Bacillus sorghi.** This has been common in Iowa for many years and never has been suspected of being poisonous. The cut ends of the cane sent me were of a pinkish color. This is due to one of the wild yeasts (*Saccharomyas glutinus*) that cause a fermentation of cane sugar. The bloating may have been caused by the cane regardless of diseased sorghum.

Stagger Grass as a Poisonous Plant

Dr. C. Dwight Marsh and A. B. Clawson in a paper on stagger grass (*Chrosperma muscaetoxicum*) as a poisonous plant,[1] note that this species has not previously been recognized as a poisonous plant, or at least has not been investigated from a scientific standpoint, although it has been recognized previously in parts of North Carolina, as dangerous to cattle and sheep. Experimental work has confirmed the opinion that the plant is poisonous. It is not a grass but is a member of the lily family. It is known locally as fly poison, or crow poison. The plant grows from a coated bulb and reaches the height of from 1.5 to 4 feet. The leaves are narrow and grass-like. The fruit is red. It is not strange that this plant should prove poisonous since it is a member of the *Veratreae* of the lily family, which contains some other poisonous plants, some quite toxic, like Veratrum, Zygadenus (camas plant) and Melathium, or bunch flower. The plant has been under investigation by the authors since 1911.

The plant occurs from Long Island to Florida and as far west as Arkansas. Walter, who described the plant, probably knew it was poisonous, as he gave it the specific name *muscaetoxicum,* alluding to its effect on flies.

Alsberg, 1912, writing of the toxic action of *Amiamthium muscaetoxicum,* says: "This liliaceous plant contains a solid alkaloid which has not been otbained in crystalline form. The alkaloid is of extreme toxicity, producing death from respiratory paralysis. The effect on the circulation is less prominent than that on the respiratory center. Striped muscle is affected in such a way that fatigue, both by direct and indirect stimulation, is very much more rapid than normally. Relaxation is somewhat delayed, but no distinct veratrine effect was obtained, though the alkaloid in some respects resembles veratrine chemically." Alsberg, 1914, says: "From a member of a closely related genus *Amianthium muscaetoxicum,* a similar active principle was obtained in an impure state. Apparently many of the species of this group of lilies contain 'veratrine' alkaloids or alkaloids related to it."

Toxic Dose

The only animals used for experimental purposes were cattle and sheep, and the number of experiments was too small to determine the dosage with any exactness. The fact that the symptoms sometimes occur after a considerable delay also adds a doubtful factor to the determination of the dosage. The experiments with calf No. 122 in 1911 indicated that the toxic dose was not far from 1 gram, or 0.0022 pound of animal weight; in other words, a 1,000-pound

[1]Bull. U. S. Dept. of Agrl. Bur. of Pl. Industry, Professional paper, 710:1-14, f. 1-8. Sept. 13, 1918.

bovine would probably be poisoned by 2.2 pounds of the plant. The experiments with cattle in 1912 and 1914 served to confirm this general conclusion, and it seems probable that the toxic dose for a bovine weighing 1,000 pounds is not far from two pounds.

Symptoms

Salivation is the first symptom noticed. The animal ceases eating and there is frothing at the mouth to a marked degree.

There are pronounced symptoms of nausea, which is followed in severe cases by profuse vomiting.

The pulse during most of the illness is nearly normal, although it may be somewhat rapid in the more acute stages of the intoxication.

The respiration is rather more rapid than normal and is frequently labored and irregular.

There is not much change in temperature, but it is liable to be slightly lower than normal.

The animal becomes very weak and staggers when it attempts to walk. When walking it moves in a stiff-legged manner.

The autopsy findings indicate that in the organs there is little change which can be considered typical of the disease.

The poison is cumulative. The authors say: "The toxic effect of chrosperma in the drenched cases appeared very quickly, in the fatal cases death occurred in one hour. In the fed cases, however, even when the feeding was done by hand and consequently took but a short period of time, the symptoms appeared after several hours. When the feeding was done in the forenoon the most pronounced symptoms did not appear until the latter part of the afternoon or in the night. They persisted, too, for a long time. In the cattle they continued for two days, and one of the sheep had not completely recovered at the end of six days.

"From this persistence of the toxic effect it seems that the poison is somewhat cumulative. In the cases in which feeding was continued on the second day it is pretty clear that its effect was added to that of the first day's feeding.

"It seems probable that the long continued illness resulting from eating the Chrosperma is due not so much to the severity of the toxic effect as to the fact that probably the active principle is extracted and absorbed somewhat slowly."

Eradication of Larkspur on Stock Range

C. Dwight Marsh and A. B. Clawson[1] in a paper on "Notes on Larkspur Eradication on Stock Ranges," advocate the removal of larkspur from the ranges in order to avoid losses from this plant. They find:

"Attempted eradication of larkspur from stock ranges in the West in some cases has not been as satisfactory as it might have been, because the roots were not cut at the depth necessary to stop further growth.

"Experimental cutting of *Delphinium barbeyi* followed by observation of the effect a year later shows that to insure results the roots should be cut at least from 6 to 8 inches below the surface.

"Observations upon two other species, *D. cucullatum* and *D. geraniifolium*, show that in them also the cutting should be at least from 6 to 8 inches below the surface.

"Certain of the high larkspurs have shallow roots, so that many of the plants can be pulled up.

"In giving directions to laborers engaged to grub out tall larkspur, it is best, in the case of all larkspurs, to require from 6 to 8 inches of the root to be dug up.

"It should be noted in this connection that the larkspur which is dug up should not be left in piles where cattle can get at it, for the dried larkspur is toxic and sometimes cattle show an especial fondness for it. There have been cases of rather heavy losses under such circumstances.

"The best time to dig the larkspur is at about the period of blossoming, for earlier all the shoots of the year will not have developed."

[1]U. S. Dept. of Agrl. Bur. of Animal Industry, July 16, 1918.

Larkspur or Poison Weed

C. Dwight Marsh, A. B. Clawson and Hadleigh Marsh,[1] in an excellent paper, find that the losses from larkspur poisoning have been almost entirely in the cattle ranges of the west and in Canada. They say: "In the cattle ranges of the west probably no other poisonous plants, with the exception of the loco weed, have caused such heavy losses to the stockmen." They find that: "A conservative estimate based on reports from a large number of ranges indicates that the annual loss is from 3 to 5 per cent. A great many of the stockmen who have reported upon the subject have given an estimate of 5 per cent. Specific cases are known in which from 20 to 50 cattle out of a single herd have died within a few hours, and in other instances individual stockmen have lost as many as 200 head in a season."

The authors list the following species: *Delphinium barbeyi, Delphinium cucullatum, D. menziesii, D. bicolor and D. virescens.*

The symptoms were: "The first symptoms of larkspur poisoning as noticed on the range, is ordinarily the falling of the animal. When cattle have been feeding upon a larkspur range and are started up suddenly, or are driven, it happens sometimes that one or more of them fall and commence to kick convulsively. While the motion of the animal when down may be described as convulsive, it can hardly be said that

[1]Farmer's Bull., U. S. Dept. of Agrl. 988:1-15, f. 1-6, and 1 f. title page, May, 1913, revised July, 1918.

the poison produces convulsions. The kicking seems to be due largely to attempts to rise rather than to involuntary contractions of the muscles of the legs.

"Poisoned animals are almost always constipated and usually recover if that condition is relieved. In all severe cases the animals are nauseated and death frequently results because the contents of the first stomach get into the windpipe. Bloating occurs in some cases but not in all; when it does occur, death in some cases is doubtless the result of mechanical obstruction of breathing.

"Experimental work showed that horses are poisoned by larkspur if they eat a considerable quantity. On the open range, however, it appears that horses never eat enough of the plant to produce any ill effect, so that they can be grazed with impunity upon ranges which would be fatal to cattle."

"When the animal is very weak, subcutaneous injections of 20 cubic centimeters (6 drams) of whisky will aid in tiding over the period of weakness and sometimes will save the animal. In the station work it was found, in all cases, that beneficial results were obtained by using a subcutaneous injection of the following formula:

Physostigmin salicylate	1 grain
Pilcarpin hydrochlorid	2 grains
Strychnin sulphate	½ grain

"This formula would apply to an animal weighing 500 or 600 pounds. For a large steer or cow of 1,000 pounds or more the dose should be twice that given in the formula.

"Cattle poisoned by larkspur should be kept as quiet as possible and turned with heads uphill; the trocar should be used if bloating occurs; they should not be bled; and in most cases they may be saved by a subcutaneous injection of the formula given above."

The authors find that sheep are not injured on the open range.

Some Nebraska Plants

Dr. Roy E. Tilden of Clarks, Nebraska, sent a consignment of plants during the summer with the following letter:

"Taking advantage of your department of live stock poisoning in the Journal, I am sending some specimens of weeds and grasses gathered along a little dry creek in a stubblefield where two cows have died, apparently of weed poisoning. I did not get to post them, so cannot give postmortem findings. Prior to death the animals showed nervous symptoms, muscular incoordination, and the one that I saw before death was down, had a temperature of 105° and seemed to be delirious. Mucous membranes practically normal. Since changing the cattle into another pasture several days ago, there has been no more trouble.

"Besides the specimens I am sending, there were cockle-burs, but they were of quite good size, and I could not see that the cattle had been eating them."

I identified the plants as follows for him: switch grass, goldenrod, partridge pea, Spanish needle, blue vervain, evening primrose, five finger, aster, purple loosestrife *Lycopus sinuatus* vernonia, iron weed, and prairie lily. The partridge pea is a cathartic but certainly not very poisonous. The blue vervain and evening primrose, so far as I know, are not eaten by cattle. The purple loosestrife is considered poisonous. I discussed this plant in this Journal some time ago. Nothing is known about the prairie lily (*Eustonia Russelliana*), a plant occurring all the way from Texas to Nebraska. It is a member of the gentian family. Some of the gentians are used in stock foods. A few plants of the family like buck bean, *Menyanthes trifoliata,* are considered poisonous.

Oak Poisoning of Live Stock

C. Dwight Marsh and A. B. Clawson have issued a short circular[2] on oak poisoning which occurs chiefly in Colorado, Texas, New Mexico and Utah. In Utah it is caused by Gambel's oak (*Quercus Gambelii*) which occurs at altitudes of 5,500 to 8,000 feet, most of the cases occurring in the spring. In Texas it is caused by the "shinnery oak" (*Q. havardii*) which I discussed in this Journal a year or so ago. The symptoms are described as follows: "Perhaps the most noticeable symptom is the extreme constipation. Feces are passed infrequently, and are dark and hard, consisting at times largely of mucus, and sometimes are bloody. This condition of constipation may be followed by diarrhea. The animal becomes gaunt, coat rough, nose dry and cracked. The attitude is peculiar, the head being extended forward. Appetite is lost and weakness increases until death ensues. The temperature and respiration are normal. These symptoms appear after rather prolonged feeding upon the oak, in about a week. The animal may die in two weeks or may linger for an indefinite period.

"In the autopsies the congested condition of the interior of the intestine and sometimes of the fourth stomach is most noticeable.

"From the fact that oak cases are constipated, it is evident that any treatment relieving this condition would be helpful. Epsom salt might be used in pound doses, or it could be given in the water in small quantities, in localities where the cattle are watered at wells."

Poisoning by Wild Onion

Professor F. J. Pipal, of Purdue University, discusses an interesting case of stock poisoning by wild onion (*Allium canadense*).[1]

[1]Proc. Ind. Acad. Sci. 1917, 139-145.
[2]Bureau of Animal Industry, May 20, 1918, p. 1-3.

The brief of the case is as follows: Five cows and one heifer were taken from a timothy pasture which was short and dry and turned into a woods pasture, where there was quite a patch of wild onions containing numerous bulblets. Dr. G. M. Funkhouser found one cow in the pasture unable to get up, and it was noticed when the cows were milked that the milk contained a strong offensive odor and that it decreased in quantity. Dr. Funkhouser found the cow in the pasture in a complete paralytic condition, temperature quite normal. She died in two days. Another cow in the barnyard was at the time in a similar condition and died the same day. One of the remaining three cows stood with her head erect, hair bristling, and refused to move. Another had a tendency to draw her head to one side, and when compelled to move went around in a circle and fell down. The third had a staring attitude and also a tendency to move in a circle. All died the following day. The heifer also had a staring attitude and in addition showed signs of cerebral disturbances.

Professor Pipal says a strong odor of wild onions was detected in the milk, and the paunch of the poisoned animals showed signs of poisoning. In making a search of the pasture a good sized patch of wild onions was discovered, but no other poisonous plants were found. The onion patch showed evidence of much recent grazing.

The author describes the characteristic odor of the plant due to the oxid of sulphids of allyl, which oil has an irritating effect on the membraneous tissue. The bulblets of the plant probably contain this oil in comparatively large quantities.

The *Allium canadense* is widely distributed in the moist meadows in the north, from New Brunswick to Ontario, west to Minnesota, Iowa, and south to Florida and Texas.

Deadly Nightshade and Bitter Sweet

I have received a number of letters recently in regard to the so-called deadly nightshade (*Solanum nigrum*). These letters have come from widely different sources. Large numbers of sheep are being pastured in Iowa this fall, and thus far the complaints have been largely from sheep owners. Mr. C. C. Croxen of West Liberty, Iowa, writes as follows: "I am enclosing a weed which grows in the gardens of W. L. Have. I have been told it is called the deadly nightshade. One of my prize sheep being pastured in a lot in town died the other day, and we were unable to find any cause for its death. I have never seen this weed before and have been wondering if it could be poisonous to sheep. If you will please let me know I will be much obliged for I have other sheep in the same place."

Mr. E. M. Torblaa of Clarion, Iowa, states that a lady used stubble berries for pies, but could not tell the difference between stubble berries and deadly nightshade. Mr. J. W. Merrill of Muscatine says in regard to a specimen of the nightshade sent to me: "The seed was bought from a nursery at Lincoln, Nebraska, for the German *Heidelberry*, but seems to be a sort of a nightshade. They tried some of them and they burn the mouth very much and are a sort of poison to the mouth."

J. E. Morris of Cedar Rapids writes as follows with reference to the bitter sweet (*Solanum Dulcamara*): "Children have been eating the berries and the parents administered an emetic for fear they might be poisonous. Is it safe to have the plants growing?"

The stubble berry is the same as the deadly nightshade (*Solanum nigrum*), and is, of course, related to the wonderberry, first introduced by Luther Burbank of California. The wonderberry is quite harmless, except that some persons are sensitive to the plant. The fruit of the stubble berry has been used for making jams, and in my opinion the fruit should not be regarded as a very toxic plant. The fruit should not be used until it is thoroughly ripe. The green leaves, no doubt, are toxic and the injury said to occur when sheep feed on it, is probably due to the alkaloid solanin found in the green leaves and unripe fruit. The bitter sweet which should not be confused with another plant called bitter sweet (*Cilastrus scandens*), is somewhat poisonous, especially the leaves. The fruit is probably not very toxic. *Cilastrus scandens* is a shrub while the bitter sweet has bluish potato-like flowers and red berries. Bitter sweet is used in medicine, and full doses produce a certain amount of cerebral disturbance of a narcotic character. In Europe it is regarded as a narcotic poison. The western three-flowered nightshade (*Solanum triflorum*) produces not only poisonous leaves, but, according to Professor Chestnut, the berries are also poisonous. Several complaints have come to me from Nebraska, that the plant is poisonous.

POINTED OPINIONS ON LIVE TOPICS by Readers of Veterinary Medicine

It is in reports like those of this department that the current history of the progress of veterinary science is written. Are you leaving a record of your experience which will help others, as you have been aided by these and other clinical reports? If not, you are earnestly invited to contribute from your experience that this department may be of the greatest service to its readers. By so doing you will earn the lasting gratitude of those who are aided by your suggestions.

Mid-Annual Missouri Valley Veterinary Meeting

NEARLY three hundred veterinarians were registered at the Missouri Valley Veterinary Association meeting held at the Coates House, Kansas City, February 11, 12 and 13. This was the largest attendance of graduate veterinarians during the twenty-six years of the association's existence.

The program was opened by the report of the committee on sanitation made by Dr. D. F. Luckey, chairman of the committee. He called attention to the confusion existing in shipping regulations in different states and the frequent conflicts between state and federal regulations, and made a strong plea for the establishment of uniform rules with which shippers, veterinarians and railway employees might easily become familiar.

Dr. H. S. Murphey reported for the committee on surgery, laying special stress on wound treatment. The importance of removing damaged and devitalized tissues was emphasized. He also gave considerable attention to the value of Dakin's solution in the treatment of wounds in animals, stating that experiments had failed to show its superior properties in veterinary practice.

A very comprehensive and well prepared paper on the control of infectious abortion was given by Dr. G. F. Jungerman. The cardinal points in the control of this disease are cleaning up of infected premises, segregation of infected animals, removal of retained placentas, and thorough cleaning up of affected cows, using for irrigation purposes a weak solution of liquor cresolis compositus every three days. In addition to these measures, bacterin treatments given in series of not less than six injections are recommended.

"Blackleg and Its Control" was the topic of a paper given by Dr. L. W. Goss. He gave a review of the various methods of immunizing cattle against this disease, together with comparative studies of natural aggressin and a culture filtrate prepared at the Kansas Agricultural Experiment Station. In a rather extensive use of this culture filtrate, he finds that the immunity after the first five to ten days compares very favorably with that following the use of natural aggressin. A few members in discussing this paper stated that in their hands several culture filtrates had been used with not the best of success. However, no adverse reports were made by any one who had used the Kansas product.

Dr. H. S. Murphey reported on some interesting cases in dentistry and described an operation for saving the testicle in ruptured pigs which had been the means of making valuable breeding animals out of what otherwise would have been meat hogs.

Regarding dental affections, he states that practically all dental cases involving the first, second or third cheek teeth in young horses at the time of eruption of the permanent teeth, accompanied with bony enlargement, are due to infection, and recommended extraction and destruction of tooth-forming membrane as a logical treatment.

Dr. N. S. Mayo gave an interesting paper on the treatment of wounds with chlorazene and dichoramin-T, illustrating their use with a series of motion pictures.

Dr. J. W. Connaway gave a very able discourse on bacteremia and disease transmission, laying special stress upon anthrax, tuberculosis and hog cholera.

Dr. J. W. Parker presented some new ideas relative to irregular reactions to the tuberculin test. He stated that on autopsy in abattoirs 20 per cent of reacting animals showed no microscopic lesions, while on the other hand occasional non-reactors showed extensive lesions. His explanation of this latter condition is that progressive production of toxins

in the body results in a maximum of metabolism which is not increased by the introduction of the toxins of tuberculin.

Dr. W. H. Bailey presented a paper on "Passive Hyperthemia Thermotaxis," which was ably discussed from both the physiological and pathological points of view.

Dr. J. C. Flynn reported on some of the unusual cases he had encountered in canine practice, among them being three cases of pancreatic atrophy characterized by ravenous appetite, emaciation and the passage of a peculiar pulpy, adherent form of feces. The most unusual case, and one which the Doctor stated would probably not be believed by any of his audience, was a case of a dog whose pylorus had been obstructed by fibrous tissue, resulting from a large sternal abscess, for a period of over two years. During this time the dog would eat in a normal manner but after two hours would vomit up the stomach contents. The owner stated that there had been no evacuation from the bowels for over two years, which the doctor satisfied himself was correct, after holding the dog under close observation for several days. Autopsy showed the intestinal wall to be greatly atrophied and of papery consistency.

Dr. W. E. Stone reported for the committee on therapeutics on the intravenous use of iodin and arsenical compounds. In his hands, arsenic administered in this way has not proven efficacious in destroying circulatory parasites.

Dr. Arthur Groves gave a clear-cut description of the immunization of hogs as conducted by the B. A. I. in the Kansas City stockyards. The results of the method have been uniformly good and have proved a boon to the stock hog industry.

Papers by C. M. McFarland and C. E. Salsbery dealt with mixed infections in swine, each author giving his findings relative to the organisms present in such cases. There seemed to be a close agreement in their work although conducted entirely independently. Dr. McFarland's paper is printed elsewhere in this issue.

Dr. W. F. Brownlee read a well prepared paper praising the results of serum and bacterial vaccines in mixed infections of swine when used with proper discrimination.

The last day's program was devoted to the problem of sheep diseases. Dr. I. E. Newsom reported on the investigations of sheep losses in Colorado, which he finds are largely due to hemorrhagic septicemia. So satisfactory has been the preventive treatment with bacterial vaccines that he recommends this procedure to those who are assembling lambs for feeding purposes. He reported on 28,833 animals in affected herds; the loss at the time of vaccination totaling 488 with 1,281 sick. The losses after vaccination were only 338. The owners in practically all cases were entirely satisfied with the results of the treatment.

Dr. E. T. Baker, of Moscow, Idaho, gave a very practical discussion of sheep diseases with appropriate means of treatment or control. He emphasized the growing importance of sheep raising and the necessity of veterinarians familiarizing themselves with the characteristices of the different breeds and the anatomical and physiological peculiarities of these animals. He classified the various common diseases and described their treatment in a practical manner, at the same time injecting considerable levity which often put his audience in an uproar.

The banquet on the night of the twelfth was largely attended, an unusually large number of ladies being present. Dr. N. S. Mayo served as toastmaster and called upon representatives of the Kansas City Live Stock Exchange, Stock Yards Company, B. A. I. and the Army Medical Service.

Mrs. Ashe Lockhart carried away the honors of the evening in a splendid toast, "The Veterinarian's Wife." Captain Daniel LeMay, a charter member of the Association, spoke feelingly of his long experience in the regular army, on the eve of his retirement to civil life.

Dr. H. H. Silverforb had charge of the entertainment for the ladies, and deserves great credit for his carefully arranged program. Other members of the local arrangements committee also deserve much credit for their efficient work.

Special committees were appointed to report at the next meeting on the matter of live stock shipping regulations and the revision of the classification of swine diseases.

Resolutions were passed on the death of Dr. W. S. Nichols of Ravenna, Nebraska, the only death reported within the past six months.

The next meeting will be held at Omaha as usual; the time probably being early in July.

R. F. BOURNE, *Secretary.*

MORE CLINICAL TRAINING NEEDED

Among other pertinent questions confronting us, in my opinion, higher education is one of the foremost. I believe that as far as the technical part is concerned, the colleges are doing their part, but how about the clinical or practical training?

Young men going out to the country to practice will find themselves handicapped in endeavoring to compete with some empirics even. In my opinion, clinical training is one of the most important matters to be considered by those interested in educational matters, and it must be handled so as to redound to the ultimate benefit of the young practitioner if he is to make a favorable impression on his critical clients and enable him to apply

the technical training he has been so well grounded in. I say critical clients, advisedly, for our clients are becoming better educated and demand a finished product in their veterinarian as with other aids and implements in their work. They recognize the experienced horseman and stockman by the manner of his approach to an animal; his examination of his patient; his adeptness in the application of his methods of restraint; the application of his remedial measures; his general knowledge of the conditions confronting his client and surrounding his patient; and the lack of this practical knowledge often discredits the otherwise well qualified young man and creates a prejudice so deeply seated that it is dfficult to overcome.

Unless properly trained what kind of an impression will the young practitioner make in the handling of an obstetric case, removal of a retained placenta or the replacement of a prolapsed uterus? The handling of these and of many other difficult conditions can be learned only in the field under the direction of a finished practitioner. I would be glad to see a movement started for better clinical training of our young men and a closer acquaintance with the conditions and problems they must face and master before they can secure the full confidence of their clients and put in force the technical knowledge that is nowadays being so well imparted in our schools.

John L. Tyler.

Pomona, Calif.

RELATION BETWEEN HUMAN AND BOVINE TUBERCULOSIS

While it is admitted that bovine tuberculosis is a menace to the live stock industry by virtue of its destructive and disorganizing effects upon herds and by the financial losses sustained, there is, however, a more serious aspect, i. e., its transmissibility to the human.

It is customary to classify tuberculous organisms into types corresponding to the types it was isolated from: the human, bovine and avian. While this method is no doubt useful in classifying as to source, etc., in my opinion, the word "type" is a misnomer, as the bovine type can produce the disease in birds and the bovine type can cause tuberculosis in the human.

During my study of human medicine, while connected with Cook County Hospital, Chicago, I observed many cases of tuberculosis in children. In the majority of these cases the bones were affected, and if my memory serves me right, a large per cent showed organisms of the bovine type. Let us consider this phase of the question. Is it not strange that in the greater number of infantile infections the bovine type is present, while in the adult the human variety is found? Does it seem possible that the bovine type of the infant today is replaced by the human type of tomorrow? Does it not appear as though the slight differences in morphology and biochemic behavior of the organism is merely due to the change of environment produced by the change of hosts, as is noted in the non-pathogenic forms obtained from the salamander and turtle? However, even if we eliminate the question of types and consider the pathogenicity of the organisms, the relation of bovine tuberculosis to that of the human species remains the same. The following two cases will I believe show conclusively that if not in all, then in many cases of tuberculosis in the adult the disease emanated from an open tuberculous cow.

Case 1. Several years ago a farmer had his cattle tested and 30 head reacted. In this family there is, by their own admission, four cases of tuberculosis as a result. All adults were infected.

Case 2. A young man twenty-four years of age contracted the disease three years ago. He was treated both at home and the hospital. A rib resection was done to drain an empyema of one lung and a bone curettment was done for a lesion in the left carpus. I demonstrated the organism in smears from a lesion of the first phalanx and it had all the morphological characteristics of the so-called bovine type. Attempts at growing this organism failed, hence nothing is known relative to its biochemic features. The patient stated that he drank milk from a cow which later reacted to the tuberculin test. Without doubt there are thousands of just such instances as these two. For instance the case of a little girl in a nearby Iowa town, the daughter of a university professor, who after years of patient suffering finally gave up her young life, a victim to the poisoned milk of an open tubercular cow, which on autopsy showed lesions of the mammary gland. This is the case to which so much attention was drawn by our capable state official, Dr. J. I. Gibson, in his campaign against tuberculosis.

How much longer are we going to shoulder the responsibility for the constantly increasing army of victims of the "white plague" and the thousands of premature deaths? How much longer shall we stand impotently by while this subtle and insidious disease reaches out each year for still more victims?

Truly we need legislation but without the cooperation of the public we will be handicapped. What we need is education together with legislation. Public demonstrations, autopsies on tubercular cattle and swine, with lectures, in every community. Give the people an opportunity to see the horrors of the disease and supply them with the facts and we will have their cooperation.

It is not necessary to ruthlessly kill every

reactor. I have tried the "palliative method" with such good results that I can conscientiously recommend it. This consists in dividing the herd into two herds. One composed of non-clinical reacters, the other composed of non-reacters. The clinical cases should be destroyed and new cases developing among the reactors disposed of in a similar manner, the calves from the reactors to be fed on pasteurized milk or milk from the tuberculosis free herd. In this way the herd can be kept numerically intact, while at the same time the disease is eradicated from the premises.

If every veterinarian will preach the doctrine of eradication and the dangers to public health of non-eradication, and, if he will bring all the pressure to bear upon our legislators that he can, then we may eventually become mobilized and ready to really act against this plague, the presence of which is a reflection upon this generation with all our modern scientific methods of combating disease, and in the face of the fact that the medical profession has successfully eradicated such difficult diseases as yellow fever, etc. It's going to be a big job to eradicate tuberculosis and a job that requires concerted action; however it should be done, so let us get busy.

G. E. Jorgenson,
Assistant State Veterinarian.
Clermont, Iowa.

HEMORRHAGIC SEPTICEMIA IN HORSES*

Hemorrhagic septicemia in horses is a condition about which we are unable to get much first hand information. Outbreaks are reported, the disease is said to exist, but nothing definite is confirmed. Detailed information regarding the pathology and symptoms are lacking. A great many of the outbreaks are diagnosed symptomatically and no effort made to confirm it in the laboratory.

If this short article will be of any assistance to another practitioner or if it will stimulate or assist in the further investigation of the disease, its purpose will have been accomplished.

This outbreak occurred in February, March and April, 1918. It included eight horses in all—three died of the disease; another, which would have died eventually, was killed for postmortem examination, and four recovered, as will be noted later.

A few days previous to Feb. 17, two horses had died showing the same symptoms as No. 3, which was sick at the time. The day previous the animal had been in the harness all day and had eaten the usual amount of feed in the evening. Nothing out of the ordinary was noticed by the owner.

The next morning the animal was found down in the barn and unable to rise, pawing and striking continually; nostrils dilated and breathing rapidly; pulse fast and weak; temperature 97.5°; bowel movement apparently normal.

When placed in an upright position the symptoms were less marked and the animal would eat both hay and grain as well as drink water from a bucket. When assisted to the feet with slings he would support himself and move about the stall as much as the slings would allow. When the animal was down there was trismus of the muscles of the neck and the neck was held in the position of lordosis.

At this time the diagnosis was problematical and was withheld. Treatment in the way of purgatives and stimulants was given.

On the second day following, the animal died, and on account of the very bad weather only a limited autopsy was held. The blood was dark, with not much tendency to clot. There were numerous small petechiae on the atria of the heart—large blotch-like hemorrhages beneath the epicardium and on the muscular pillars beneath the endocardium. We consider these lesions as almost pathognomonic of hemorrhagic septicemia in domestic animals.

The day before this animal died, a colt, No. 4, was down in the next stall, unable to rise without the sling and manifesting the same symptoms as No. 3.

This colt was given 200 mil of the antiserum prepared at the state biological laboratory for hemorrhagic septicemia in cattle. The next morning 150 mil more was given. This colt received no further treatment, and in a weeks' time was turned out to pasture in a nearby orchard.

On March 22, thirty-one days after No. 3 had died, horse No. 5 was found down in the barn early in the morning, but by the time we reached the farm he was up eating and apparently all right since the temperature was normal and no clinical symptoms visible. This, however, was a mistake for at 3 p. m. the horse was down again and another one, No. 6, was also down. This time there was no mistaking the diagnosis for both animals showed the same violent symptoms as seen in the previous animals.

They were assisted to their feet and given an aloes ball and arecolin. When on their feet the symptoms almost entirely disappeared and the same appetite for feed and water was manifested as in the other cases.

On account of the fact that we were unable to get more of the anti-serum from the laboratory, colt No. 4 was bled from the jugular. The clot was removed and these two cases, Nos. 5 and 6, were given 90 mil of the serum

*Presented at the Eastern Iowa Veterinary Assn. Meeting, Cedar Rapids, Dec., 1918.

intravenously. This injecting was done the next morning after they were taken sick.

Both of them were given 60 mil of the colt serum daily for two days.

On the third day after No. 6 was taken sick she was turned out in the lot apparently as well as ever. At this time No. 5 was still in the slings.

Up to this time all of the animals had been kept in the same barn. Those that had been getting hay and corn to eat were changed to straw and oats and vice versa. Others had hay and oats while some had straw and oats.

Two days after Nos. 5 and 6 came down, a black filly, No. 7, in a pasture adjoining this barn, was found down and unable to rise. She was taken to the barn on a sled, put in the slings and given the same line of treatment with the colt serum that Nos. 5 and 6 had received. It was necessary to keep her in the sling for about ten days, after which time she was turned out to pasture fully recovered.

About this time the owner was running short of work horses and went to a nearby market and purchased two aged mares. This team was stabled in a large shed some 300 feet from the previously mentioned barn and on higher ground. It was also about a hundred feet from the pasture in which No. 7 was when taken sick.

One of the newly purchased mares was on the place just ten days when she came down in the same way that the others had. She was given one dose of 100 mil of the colt serum and made a rapid recovery in a few days.

No. 5 showed much improvement the first seven or eight days and then began to fail, until on the tenth day he was unable to support his own weight in the slings. He was killed and a very complete postmortem, which took some three or four hours, was held. The following were the findings: Blood very dark and showing marked hemolysis; petechiae on mediastinal, prepectoral and mesenteric lymph-glands; approximately three pints of straw-colored fluid in the pericardial sac; hemorrhages beneath the epicardium and the very characteristic hemorrhages of the endocardium which at times seemed to extend into, and follow the muscular striations of the myocardium. The entire body was dissected and no other lesions found.

Samples of the blood, pericardial fluid, part of the lymph-glands and the entire heart were forwarded to the department of veterinary investigation of the state college for laboratory diagnosis.

Large numbers of bipolar-staining organisms were found in the pericardial fluid. They were not, however, pathogenic for laboratory animals and would not grow on laboratory media. Whether or not they are pathogenic when found in the animal at this stage; whether or not the treatment given the animal had destroyed their virulence and the animal died from the lesions produced; or whether climatic conditions or some other unknown factor influenced them is only to be conjectured. The lesions found in the organs were typically those of hemorrhagic septicemia.

In fifteen days after No. 8 had recovered, she was bled from the jugular and the remaining horses on the farm were given 100 mil, intravenously. Whether or not the disease had run its course cannot be determined but no other animals became sick after the treatment.

Summary: The disease was not caused by the feed since all sorts of changes were made in feeding corn, oats, clover, hay, straw and corn stover as well as corn fodder. No two animals were given the same combination of feeds after the first two died.

An analysis of the water showed it to be typical Iowa water. All animals drank water from the same well, but from different containers.

All animals given medicinal treatment alone died; while all those given either the laboratory serum or the serum from the recovered colt lived, with one exception.

The lesions of the heart may practically be considered pathognomonic.

JOHN PATTERSON.

Hedrick, Ia.

SARCOMA IN BOSTON BULL TERRIER

The illustration shows a well developed case of sarcoma in a female Boston bull terrier. The diagnosis was made through the laboratory of the veterinary department of the State College, Ames, Ia.

A client consulted me relative to the patient and I told him it was useless to operate as there would be a recurrence of the growth, but his children begged to have their companion receive surgical treatment: therefore I operated July 12, 1917. Two months later I called to put an end to her troubles, by the injection of 20 c.c. dilute hydrocyanic acid injected into the heart. The

Sarcoma in Boston Bull female, diagnosed through laboratory of the state department, Ames, Ia.

animal got so she could scarcely use the right hind limb; all her teeth were loose and four tumors the size of a 25-cent piece had formed where teeth had been extracted. The growths removed from the dorsal region and the vagina did not recur, and healing was by first intention.

A. G. FEERS.

Davenport, Ia.

LONG LIVE THE HORSE

Everywhere there are dismal Jimmies who prophesy that the days of the horse are numbered. The veterinary surgeon is constantly encountering them. Unless he has time to think, in a weak moment he is apt to acquiesce. He should be able to keep his end up and make a good argumentative fight on the matter. The love of horses is innate in the heart of a majority of Britishers. From their cradles to their graves they talk about them. They commence life clamoring for a "gee-gee" and a whip, and babble in their dotage of the great feats or pleasant manners of some equine favorites they have known or possessed. Their achivements and special work can never be replaced by the aeroplane or motor car.

In war we think they will always be needed. The defeat of the Germans was in a measure due to their lack of horses. Just before the commencement of the conflict they purchased half a million horses to add to their huge stock, and it was the irony of fate that gave them 300,000 from France. As the fight went on their sources of supply were closed to them and their shortage of horses caused much of the heavy artillery to fall into the hands of the allied armies when the combined advance under Marshall Foch began.

About five and half million horses have been employed on the Western front, and two million of these belonged to Great Britain. The collapse of Bulgaria, the victories in Palestine and the safety of the armies in Italy have all been due to good cavalry work. The keeping of the horses fit has enabled the R. A. V. C. to gain fresh laurel wreaths. No caviling critic can find fault when a total of 1,424,000 have been discharged cured, out of a total of 1,850,000 horses treated from the commencement of the war to February, 1918. In agricultural work, in dray work in and about the town, on the race course and in the hunting field, the horse stands as good chance of surviving as mankind itself. What humor and sentiment would be missed from life if the horse were to become extinct!

It is reported that a gallant colonel of Volunteers was once riding a horse hired from a local carriage company. The guard of a passing tram rang his bell and the charger suddenly stopped. The gallant colonel threatened to use his ornamental spurs as the serried ranks of the British army went marching into him. Then the train driver providentially rang the bell again, and the situation was saved, and hubbub and confusion were followed by peace, perfect peace.

When black horses get white with foam at a funeral, old coachmen will tell you that "if 'earse 'osses were in a muck sweat as if pumpt on, it showed th' corpse 'ad much brass or done summut wrong." Those "thrught out wi' brass" must have been a little unscrupulous, and horses soon find this out and have great difficulty dragging such to Church, deeming them unfit for Christian burial. The moral is that all wealthy folk ought to be cremated.

Horses are said to be able to see spirits or boggarts better than men. The horse is a noble animal and it hasn't always a most pernicious influence upon every one connected with it.

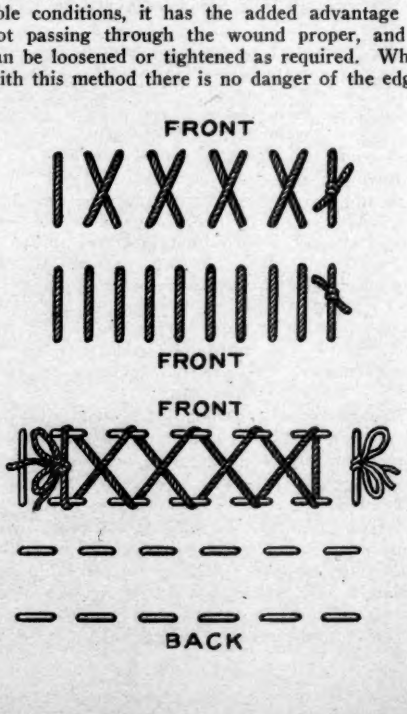
A smart dealer was once trying to sell a broken-winded horse to an equally smart purchaser. The seller kept calling attention to the glossiness and brilliance of the horse's coat. Finally the solicited buyer said, "Oh, aye, aye, his coat is a fine one, but I'm hanged if I care for the pants."

All down the ages, grand work has been done by the horse; and humor, sentiment, interest and attractive roguery have ever been associated with him. May he and his race remain long with us.

—G. M. Mayall, *Veterinary Journal.*

NON-TEARING SUTURES

The accompanying drawings show my new non-tearable sutures. I had always had more or less trouble with sutures tearing and leaving ragged edges, preventing union by first intention, until I contrived this form of suture. Beside the fact that it will not tear under reasonable conditions, it has the added advantage of not passing through the wound proper, and it can be loosened or tightened as required. While with this method there is no danger of the edges



turning in, it is always good practice to avoid drawing the edges too close together. After finishing a suture, I push a knife in between the edges to bring them into proper position and lift out possible turned in hair. This suture will never tear out if the side sutures are placed far enough back. In deep wounds the side sutures must be correspondingly deep in order to bring the underlying tissues together, which it was impossible to accomplish with the old form of suture.

Tottenville, N. Y. P. C. JUHL.

MORE ABOUT VETERINARY FEES AND COLLECTIONS

Your article on "Veterinary Fees and Collections" will surely make interesting reading for your many subscribers. It is fine to read of other's opinions and experiences and compare them with your own, and your topic is one that is sure to create an interest at any time or at any place. I note your quotations from Drs. Taylor and Steffen, the following axiom is one I have used in my office for several years. It has served me well and may interest others.

"Our professional aim should not be how much money we can make, but how much good we can do for the live stock industry and relief of suffering animals. These two principles well guarded and enforced will automatically take care of us."

After all, the charging and collecting of fees embrace so many things that it seems as if they must vary with the various locations and even with the veterinarian himself. The expense of living and doing business in a locality must influence the veterinarian's charges the same as it does other business men, and again the individual veterinarian must get a larger fee than others if he is maintaining a more expensive equipment and doing a higher class business than his competitors who have not the ability or desire to do.

I can testify from experience to the many good suggestions in your article, particularly the one in which you advise keeping in touch with each case. This has been our method in our office for years, and I believe there is no one thing that has done more to build up and hold our practice than this. We have three methods of keeping in touch with our cases. First, when we have a case which we are in doubt whether it will be necessary to see the following day or not, we instruct the attendant to call us and report the following morning. We usually make these telephone appointments for around 8 o'clock, consequently we have a flood of fairly accurate information as to our cases and it enables us to arrange our work with the least possible repetition of routes, as well as placing the burden of the care or neglect of an animal on the owner. Quite different if the animal should grow worse in the afternoon and the owner or caretaker, could place the blame for not coming in the morning on the veterinarian.

Second, in serious cases or operations such as you mention, we frequently call the owner or those interested in the case on the telephone perhaps several times the same day.

Third, in rural localities we not infrequently drop in (without making any charge) to see a chronic case as we pass, for our own information and to encourage those in charge to continue faithfully, and to make sure that some over-officious neighbor or quack is not meddling with the case and getting credit for what we have done, and lastly it shows an interest that is usually appreciated by most clients. These little details take up our time it is true, and a busy practitioner without an assistant may argue that they cannot give up the time to do it, but if they will give up the time to do it and are in a locality that has possibilities, they will find themselves some day able to employ others to help them with the roughest part of their practice.

As to collections I have been rather fortunate in collecting, my collections have always been 95 per cent or better (this does not take into account charity work). Contrary to your advice we frequently refuse a fee *when we know our client* until we have finished with the case, if it presents a doubtful prognosis. We give such cases every kind of attention and if the results are not as we would wish and our client has not too much of worldly goods, we present a statement for the full amount for such services, but if we think the conditions warrant it we may make such deductions from the total amount as we believe should be made, depending on the financial circumstances of the owner, etc. There can then be no mistake as to what our services were actually worth or what could have been charged and likewise no mistake as to the amount we have literally donated on account of the owner's misfortune. By such service and reasonable charges it is rare indeed that the loss of an animal means the loss of a client.

We send monthly statements to most of our clients but never "nag" a reliable man. Such men will pay when their business arrangements make it opportune. It peeves them to be annoyed by their creditors with small accounts. Charge them enough for services so you can afford to wait. I agree exactly with you in reference to the "slow pay" client of doubtful or shady reliability. See that his account never "gets cold". He will usually be a better client and stick longer if you see that he keeps paid up. For the class between the "big man" and the "poor pay" man when one of these get a little careless in sending a check, a personal note like the following often works well for me.

"We give prompt efficient service, if you are one of those who appreciates it please let us know it by prompt payments." I never do

any collecting by calling on a client, with the exception of one kind of a client, since let the client be who he may, if he failed to be courteous when I asked him for money legitimately due me. I know full well something would happen. The kind of client I personally call on is the "dead beat" who hangs up everybody but the undertaker. When I get such a man on my books and can not collect it any other way I make it known to him that after a certain date if the account is not paid he is apt to be mussed up a little, and if you have the courage and size, "trimming" a few of these "dead beats" in good style, parodoxical though it may seem, will not injure your standing in your community but will simplify your collections wonderfully.

J. F. DeVine.

Goshen, N. Y.

STANDS BY CHLORAL HYDRATE ANESTHESIA.

Referring to the answer on page 133 of the March Journal, of the query by G. A. H., Ia., re the use of chloral hydrate intravenously for anesthesia for such operations as fistulous withers, etc., I will say that it has everything else I have ever used backed clear off the boards. It is not, in my opinion, dangerous and not difficult to control. Further, it is my opinion that whoever answered G. A. H.'s query in the March issue, has never given the drug a fair trial, intravenously.

Thos. Childs, Capt., R. A. V. C.

Youngstown, Alta., Can.

SODIUM CACODYLATE FOR CHOLERA

A client had thirty-two shoats that would average 100 lbs. each, three big sows, and twenty-five suckling pigs, all Duroc Jerseys. We immunized them. One of the shoats, about the smallest one in the bunch, weight about 70 lbs. at normal, had been sick five days, and had not eaten anything for forty-eight hours at the time of treatment, and had a temperature of 105° F., so I injected 60 c.c. (mil) of serum and as an experiment I gave him 1 c.c. or 10 grs. sodium cacodylate solution. In forty-eight hours he was looking for something to eat and a few days later the owner told me that he would run after anyone who went to the barnyard and squeal for something to eat. While I cannot state that this pig positively had cholera, there were two other big shoats with temperatures of 105° F., but looking well and still eating, and as all responded to treatment, I feel that possibly the addition of the dose of "606" to this one pig saved him. I would like to hear if others have tried this treatment, as I claim no originality for it.

Six of the suckling pigs were orphans, the sow, their mother, gave birth to seven pigs, all females, and everted the uterus. We did a classical operation of amputation of said uterus. The operation was a success, but the sow, a fine 300-lb. animal, died promptly, so the client's wife took the little orphans in charge and used nursing bottles for them and they made good use of them, as six pigs out of the litter of seven lived.

M. A. Stewart.

Richmond, Ind.

FINAL RESULTS OF COUNTY AGENT ACTIVITIES BENEFICIAL

Another source of much annoyance to a beginner in practice who has undergone long and elaborate preparations to attain the greatest possible degree of usefulness to the live stock industry, is what seems to him as unfair competition on the part of quacks and county agricultural agents. Several years later he will realize that this is no competition at all, the activities of these people can prove nothing but beneficial to a real veterinarian, but at first they will prove annoying, and unless the young practitioner is broader than the average he is apt to display a certain amount of bitterness which will do no one any good, and himself the least. —Dr. J. S. Anderson, state veterinarian of Nebraska, in his annual report for 1918.

MONEY VALUE OF PURE-BRED STOCK

In the fall of 1915 Mr. L. M. Scott, of Bagley, Wis., took two calves away from two of his cows at the same time. One was a scrub mother and the other a high-grade Hereford. The two cows were fed together on silage and hay until May 10, when they were turned on bluegrass pasture, neither being in calf. In the first week in August he shipped them with a load of steers. The scrub brought $38.65, and the grade cow $110. The difference was $81.35, due entirely to the Hereford cross.

When seeking the moral to a story like this, all the owner has to do is to look in his purse. —*Breeder's Gazette.*

OPERATION FOR SCROTAL HERNIA

At the Iowa meeting, Dr. H. S. Murphey described an operation for scrotal hernia in boar pigs to save the testicle.

A liberal incision is made over the external inguinal ring, exposing the tunica vaginalis communis, and the muscular wall of the abdomen in front of the ring. The hernia is reduced and a clamp set tightly on the tunica vaginalis (not including the spermatic cord) close to the ring after pulling the tunica out as far as practical. The tunica is sutured close to the clamp.

The size of the external ring is then lessened by two or three strong sutures which are allowed to remain ten days.

There is much swelling following this operation, but it is relieved somewhat by massage and exercise. Of five cases operated upon, four were permanently cured and the breeding qualities of the animals retained.

CALF QUADRUPLETS

I was called January 29 to the farm of Mr. Chris Hansen, Tranquility, Cal., to a case of retained placenta in a two-year-old Holstein heifer which had just given birth to four calves. The first, a heifer, was born Jan. 28, 2 a. m.; the second, a bull, born Jan. 28, 8 a. m.; the third, a bull, born Jan. 28, 10 a. m.; the fourth, a bull, born Jan. 28, 11:30 a. m. The last was born dead. The three first calves were all alive and able to stand in twenty-four hours. The mother was very weak and was placed under stimulative treatment and the placenta removed. At the last report, Feb. 20, the three calves which lived and the mother were in the best of health and doing well.

J. F. McKenna,
Fresno, Cal. Fresno Vet. Hospital.

These twins, horse and mule, are owned by Mr. Earl Morgan, breeder of fine horses on the Saline river, Kansas. Dr. C. R. Young, of Quinter, Kan., who sent us the picture, says these twins, born July 11, 1918, were foaled by a dam weighing about 1100 pounds, the mule colt measuring 32 inches in height, the ~~mule~~ horse 36 inches.

DRAINAGE WICK AFTER FISTULA OPERATION

To establish drainage after the radical operation for fistula, I use an ordinary rumenotomy trocar and canula. I incise the skin; thrust the trocar and canula to the bottom of the sinus to be drained; remove the trocar and leave the canula in position. I then force a piece of gauze through the canula and pull it through until it appears at the top of the wound and then remove the canula, leaving the drainage wick in place. As this method causes less pain than securing drainage with a knife, and, furthermore, is not followed by hemorrhage, I prefer it to the usual method of obtaining the same result.—O. A. P., Wis.

EVERYDAY PROBLEMS OF THE VETERINARIAN

In my opinion the veterinary profession is making a mistake in copying the conservatism adopted by physicians in this department of their calling.

The veterinary profession more nearly partakes of the character of a commercial calling, and while in some respects it does not differ greatly from that of human medicine, it does differ in the professional limitations connected therewith.

What may be pure ethics for physicians is down-right foolishness for the veterinary practitioner. Some of this foolishness relates to the regulation of advertising.

In my opinion the veterinary practitioner should not be too squeamish in regard to the matter of advertising. While he should make his advertisements conform to the concepts of professionalism he should not hesitate to let the community know that he is in business.

If he has any special talents he can with all propriety make a statement to that effect.

If he is conversant with more than one language he can often make it a paying asset by advertising the fact. Other things being equal, many people will give preference to one practitioner over another because they can converse with him in their native tongue.

The practitioner may also advertise the fact of any special training he may possess, without violating the standards of veterinary professionalism in the slightest degree. If he is a graduate of more than one college, or if he has taken post-graduate courses, or if he has honorably held high public offices he should make use of the facts in his advertising.

The local newspaper usually offers the best field for an advertising campaign, and the practitioner should take advantage of the possibilities it offers.

An old custom prevails in some lo-

calities that professional men shall make no charge for services rendered each other. This is a custom that the young practitioner should follow if opportunity affords.

While in some instances this professional recognition may be a more or less one-sided affair, it averages up fairly well during a period of years. This applies, however, only to services, and does not mean that the donor must supply gratis any supplies used in rendering the service. The practitioner of veterinary medicine would, for instance, treat the local physician's horse without cost to the physician; but should the veterinarian find it necessary to supply medicine or dressings he would charge the physician for them at cost.

The physician would in like manner furnish free service to the veterinarian in case of illness or accident, charging for medicines, dressings, etc., at cost only.

Professional men whom the veterinarian will likely exchange services with are physicians, dentists, and druggists.

The young graduate will usually find dispensing more practical and more satisfactory than prescription writing. It makes him more independent, and it pays better.

Avoid Entangling Alliances

In locating in a community for practice the beginner should keep free from entangling alliances as far as possible. While it may seem a good proposition to have the local druggist, or the local liveryman, or some other resident, take him "under his wing," he soon makes the discovery that he is not free to act as he would like because of his obligations to those who are backing him.

Not infrequently these parties have various connections (or mayhap disconnections) that the practitioner later finds to be incompatible with his program of action and with his own ideals. He usually finds it a difficult matter to break away from this "chaperonage," and in many instances a friendship is lost thereby.

Summary

From what has been said in previous articles we have little difficulty in "reading between the lines" that the practice of veterinary medicine and surgery is not all pleasure, by any means.

But what is most important and most interesting is the evidence which points to the fact that professional ability alone does not make a successful veterinary practitioner.

As a matter of fact a successful practitioner of veterinary medicine and surgery must be a man who has a good business head, who has tact, and last, but not least, a man who understands people and their ways. These attributes are the weapons with which a "quack" at times bests a graduate who does not possess them.

There are a few things that can yet be said, things that are not new, but yet they will bear rehearsing.

One of these is that, when the young veterinarian is called into consultation with another practitioner, the young graduate must not think that he has been called because he knows more than the practitioner attending the case. He has been called, in most cases, at the suggestion of the attending practitioner, so that the latter might be able to shift a share of the responsibility in the case to other shoulders. As the young graduate grows in age and experience he will probably do the same thing. I regret to make the acknowledgment, but it is true, that genuine, sincere consultations between veterinarians are the exception rather than the rule.

Another thing that will bear "resaying" is that the practitioner can seldom get more for his services than they are worth. He may be able to collect unreasonable fees a few times, but in the end he loses.

In the matter of enforcing sanitary regulations and live-stock sanitary laws in cases of contagious disease the practitioner is often "betwixt the devil and the deep sea." He can save himself much worry, frequent embarrassment and occasional humiliation by adhering to the old slogan, "Honesty is the best policy."

In all practices, from the most extensive to the most ordinary, there come spells of inactivity. Several days,

a week, or even a month falls way below normal in the amount of business done. The young graduate must not allow himself to be discouraged by such lulls in business; any moment activity may be renewed.

The same is true of a series of deaths which may follow one another in rapid succession. This occurs with the best of practitioners at times. It should not be looked upon as an evidence of inefficiency on the veterinarian's part; it is usually a mere coincidence, unavoidable.

The young graduate should not put too much faith in the powers of observation that laymen possess when he prescribes for a case without seeing it. It is not a good plan to make a diagnosis from the description of a case as given by a layman. Many times the case is entirely different than described; the client uses the medicine, gets no results, and the veterinarian gets the blame.

While the experienced practitioner seldom stoops to solicit business, the young graduate should not be satisfied to sit in his office waiting for business. He should use all honorable means to get as much practice as possible, and as rapidly as possible. Much of the old idea of ethics was a money-losing proposition for the practitioner, and the new crop of graduates should pay no attention to the ethics of '49. Anything that prevents the graduate from making an honorable living, as soon after he graduates as possible, is not ethics but "poppy-cock."

A man must spend four years of his time and hundreds of dollars of his money to become qualified to practice veterinary medicine and surgery. Then, according to the ethics of '49, he commits an unpardonable sin if he attempts to get some of this money back by putting a little "pep" into his style of advertising. This kind of ethics is a thing of the past. In any other line of business (and the practice of veterinary medicine and surgery is a business) such a code of ethics could never have come into existence.

Therefore I say advertise yourself and your business in every honorable way; use printer's ink and newspaper space. Do not be afraid to let people know that you are looking for their patronage.

And then, when you get the patronage, show your appreciation by giving the best that you have of your stock in trade, namely, your professional ability, your integrity, and your ambition.

Table of Veterinary Service Fees

I have aranged a table of fees which can be used as a guide for all practical purposes. Because of the fact that veterinary practitioners are not so plentiful in the south and in the west, as well as because of the comparatively smaller number of patients presented to them for treatment, practitioners in these regions are justified in collecting a larger fee for their services.

	East, Mid. West and North		South and West	
	Day	Night	Day	Night
Mileage, first mile	$ 1.00	$ 2.00	$ 1.00	$3.00 to $5.00
Mileage, additional	.50	.50	1.00	1.00
City visits	2.00	3.00	2.50	5.00
Village visits.	2.00	2.50	2.00	3.00
Office consultation	1.00	.....	1.00	.....
Hourly attendance charge after the first hour, plus mileage	2.00	2.00	2.00	2.00
Dentistry—				
Floating	2.00	.....	2.50	.....
Extracting molar	5.00	.....	5.00	.....
Repulsing molar	10.00	.....	10.00	.....
Extracting wolf teeth	.50	.....	1.00	.....
Cutting elongated molar	1.00	.....	1.00	.....
Castration—				
Colts	5.00	.....	5.00	.....
Castration—				
Aged horses	10.00	.....	10.00	.....
Monorchid	15.00	.....	15.00	.....
Complete Cryptorchid	25.00	.....	25.00	.....
Trephining sinuses of skull	10.00	.....	15.00	.....
Tracheotomy	10.00	.....	10.00	.....
Roaring operation	15.00	.....	25.00	.....
Actual Cautery—				
Spavin	5.00	.....	10.00	.....
Ringbone	5.00	.....	10.00	.....
Splint	3.00	.....	5.00	.....
Tenotomy—				
Cunean	5 00	.....	10.00	.....
Peroneal	5.00	.....	10.00	.....
Metacarpal	10.00	.....	15.00	.....
Neurectomy—				
Digital, 1 foot	10.00	.....	15.00	.....
Digital, 2 feet	15.00	.....	25.00	.....
All other forms	15.00	.....	25.00	.....
Fistulous withers, operation	15.00	.....	25.00	.....
Poll evil, operation	15.00	.....	25.00	.....

Obstetrics—				
Mare....	$10.00 to 15.00	5.00	10.00 to 25.00	5.00
Cow	5.00 to 15.00	Extra	10.00 to 25.00	Extra
Removing Placenta—				
Mare	5.00	.....	10.00	.....
Cow	5.00	.....	10.00	.....
Fresh, $3.00.				
Putrid, $10.00.				
Replacing everted uterus, cow.....	5.00	7.50	10.00	15.00
Prophylactic dose, antitetanic serum	2.00	.....	3.00	.....
Bacterins, extra charge per dose.....	1.00	.....	1.00	.....
Enterocentesis	2.00	.....	5.00	.....
Passing stomach tube..$2.00 to 5.00		.....	2.00 to 5.00	.....
Rumenotomy..	10.00	.....	15.00	.....
Spaying bitch	10.00	.....	10.00	.....
Cesarean Section—				
Sow	5.00	.....	10.00	.....
Cow	10.00	.....	15.00	.....
Bitch	15.00	.....	15.00	.....
*Anthrax vaccine, per head	1.00	.....	1.00	.....
*Blackleg vaccine, per head	1.00	.....	1.00	.....
*Hog cholera serum, per head	.25	.....	.25	.....
*Tuberculin, (not less than 10 head) per head	1.00	.....	1.00	.....
*Tuberculin, single cow....	5.00	.....	10.00	.....
*Mallein, ophthalmic	5.00	.....	5.00	.....
*Mileage extra.				
Examination for soundness	5.00	.....	10.00	.....
Consultation with veterinarian	5.00	.....	10.00	.....
Per diem service (average)	20.00	.....	25.00	.....
Prescription fee	1.00	.....	1.00	.....

Medicines, ad valorem.
Consultation fee, $5.00, plus mileage.

These fees are subject to change in individual instances because of circumstances or conditions appertaining thereto.

The mileage fee should remain fixed.

In many cases no set fee can be considered, and the practitioner must use his judgment in making the fee fit the case. A rule that should never be broken in regard to the matter of fees is:

Never violate the custom relating to fees in your competitor's territory to his embarrassment.

M. R. STEFFEN.

Milwaukee, Wis.

Southeastern Association Meets at Birmingham

The third annual meeting of the Southeastern States Veterinary Medical Association, held at Birmingham, February 20-22, was largely attended by members, visitors and representatives of commercial houses. Some thirty new members were elected to membership. The meeting was an unusually successful one, the program being highly interesting and instructive to all attending.

Dr. C. A. Cary gave the address of welcome, which was responded to by Dr. M. Jacob.

Dr. A. T. Kinsley gave a most interesting and instructive paper on the subject of "Infection and Immunity," which was discussed quite generally. The following points were brought out: Infection usually occurs only in susceptible damaged tissue; infection may result in physical or chemical injury, usually the latter; chemical products in the form of toxins, endo-toxins, etc., result in immunity which may be toxic immunity, bactericidal or opsonic.

Left to right: Dr. I. S. McAdory, Auburn, Ala.; Dr. M. F. Jackson, Birmingham, Ala.; Dr. W. L. Stroup, Corinth, Miss., snapped at the Birmingham meeting.

Dr. C. A. Cahill followed with another valuable and much appreciated paper on "Swine Plague and Mixed Infections of Swine." Dr. Cahill believes that these troubles are specific entities and difficult or impossible of differentiating from so-called chronic cholera. Discussion of this paper was postponed until after other papers upon "Hemorrhagic Septicemia" and "Hog Cholera" had been read.

Dr. H. Jensen gave a detailed description of the symptoms and diagnostic features of hemorrhagic septicemia in cattle.

Dr. A. L. Hirleman presented a paper on "Hog Cholera Control," in which he cited the more recent government findings regarding the probably exaggerated belief in the spread of cholera by such carriers as dogs, shoes of people, wagons, etc. This paper was discussed at length by Dr. H. C. Wilson. He hopes that the treatment work in cholera control will soon be turned over to the veterinarians and that only the inspection work will be left to the state and federal officials. Dr. Cahill was

again called upon to repeat his differential diagnosis of cholera and other swine infections. Dr. Kinsley questioned the reference to cholera lesions and asked if cholera was not virtually a lesionless disease. Regarding control work by veterinarians and county agents, a contrast of the amount of cholera present in the states of Missouri and Nebraska was made.

Lieut. Blasingame, of the Federal Bureau of Public Health, next gave an interesting paper on "Control of Venereal Disease in Man." He would encourage treatment of such disease by physicians only and prevention of self-treatment and patent medicine treatment. Many drug stores have agreed not to carry such patent remedies but corner grocery stores are often gross offenders. Even small towns should have public health clinics for all diseases and they should not be stigmatized as venereal clinics. The control of such disease is a publicity problem and not a moral one. Lieutenant Blasingame was given a rising vote of thanks for his contribution to the program.

The discussion of hog cholera and mixed infections of swine was again resumed. Dr. Jensen doubts the existence of cholera without mixed infections. Dr. J. S. Koen finds it impossible to differentiate swine diseases either from symptoms, lesions or specific treatment. He cited some experimental treatments for several outbreaks of disease with very confusing results. In one extensive outbreak under his observation, he was satisfied the trouble was "flu," the symptoms tallying exactly with those his physician had diagnosed in him as "flu."

Familiar faces seen at the Birmingham meeting: Left to right: Dr. M. R. Blackstock, Spartanburg, S. C.; Dr. W. D. Staples, Anniston, Ala.; Dr. Carl J. Norden, Atlanta, Ga.; Dr. W. B. Flemming, Montgomery, Ala.; Dr. J. P. Spoon, Burlington, N. C.

Dr. F. P. Caughman led in a discussion of Dr. Jensen's paper on "Hemorrhagic Septicemia in Cattle." He related his experience with the trouble and cited the symptoms and lesions he had found. Drs. Bahnsen, Cary and Hutchens are quite sure that the "mad itch" in the South, is different from that in the West and probably not a form of "Hemorrhagic Septicemia."

Mr. I. C. Brenner gave a very entertaining talk, illustrated by views taken on his recent trip over the United States for the AMERICAN JOURNAL OF VETERINARY MEDICINE. Dr. N. S. Mayo also presented a few interesting views, scenes from Cuba, with well chosen remarks.

The influenza discussion was opened by Dr. M. J. Ragland with a few remarks regarding his experience with the British and American army horses and mules passing through the yards at Spencer, North Carolina. Dr. Kinsley stated that little definitely was known concerning influenza, but he believes there are several different entities classed as influenza. He thinks pink-eye is probably due to a filtrable virus. Dr. Roberts didn't doubt the various entities but, as in human "flu," and swine infections, believes in the possibility in the majority of cases of a specific predisposing infection followed by one or more infections. Other predisposing factors, however, are quite possible at times. Dr. M. Jacob stated good results had apparently followed rigid sanitary measures in cleaning up all centers where animals were collected in sale stables and yards. One year's experience, however, is not conclusive. Drs. Piatt, Bahnsen, Staley, Bell and Morgan reported cases of suspected forage poisoning, rather than some form of influenza, but a satisfactory diagnosis could not be made.

Owing to the length of the program, the introduction on the program of a visit to the Ensley steel mills, and the absence of the authors of several good papers, the following papers in the hands of the secretary had to be omitted: "Abortion Disease" by Dr. E. T. Hallman; "Anthrax and Blackleg" by Dr. A. Eichhorn; "Diagnostic Agents" by Dr. A. R. Ward. It was unfortunate that these papers could not be read, for they contained valuable information.

Dr. I. S. McAdory read a timely paper on "Wound Infections." Dr. Mayo discussed the results obtained in treating many infected wounds by the use of chlorazene and dichloramine-T. Dr. M. F. Jackson had failed to get a satisfactory sprayer for dichloramine-T, hence was still relying largely on his old stand-by, tincture of iodin. Dr. R. C. Moore had obtained some splendid results by continuous irrigation with very weak formaldehyd solution. Dr. Kinsley called attention to the danger of continuous irrigation unless good drainage was provided, especially if there was much force to the irrigating stream.

Dr. M. Jacob reported for the nomenclature committee on "Blacktongue in Dogs" and recommended the substitution of "Southern Dog Plague."

On Friday morning, the association assem-

bled in front of the hotel Tutwiler for a picture for a Birmingham evening paper. Dr. J. S. Andrade next read a paper on "Acute Indigestion of the Horse." He recommended the use of the stomach tube, passing the same through the nostril. The paper was discussed at length by Dr. C. J. Norden, who preferred passing the tube through the mouth, after ligating the jaws and lubricating the tube with a solution of sodium thiosulphate.

Major R. M. Staley, of the U. S. Army, gave a rather detailed account of the duties of veterinarians in the various branches of the army service. Some things much-to-be-desired were accomplished; many things were not so much desired but could have been worse. He felt that a great deal of unjust criticism of the army had been made by veterinarians both within and without the army. He reported that Dr. D. S. White had been raised to a full colonelcy upon General Pershing's staff.

The following officers were elected for the ensuing year: President, Dr. G. A. Roberts, Raleigh, N. C.; first vice-president, Dr. J. S. Andrade, Huntsville, Ala.; second vice-president, Dr. F. P. Caughman, Columbia, S. C.; third vice-president, Dr. J. W. Salter, Dawson, Ga.; secretary-treasurer, Dr. H. C. Hutchens, Atlanta, Ga.

On Friday afternoon members of the association were taken in automobiles to the large Ensley steel mills. They were shown through the plant and witnessed the process of converting huge masses of red hot steel into steel rails. At seven p. m. the annual banquet was held with Dr. A. T. Kinsley as toastmaster. Major Staley, Drs. Robert, Jensen, Bahnsen and Hirleman responded to toasts.

Dr. D. M. Campbell presented a paper on "Reconstruction Problems Confronting the Veterinarian." The problems were so many and varied that he found it difficult to recommend specific remedies for them. The paper was discussed by Dr. Tait Butler, who held that the reconstruction would necessarily entail upon the veterinarian the posting of himself upon animal husbandry subjects. Dr. N. S. Mayo, secretary of the A. V. M. A., enumerated the objects of the national association and urged all present to embrace the opportunity of making this the banner year for the South in new members for the A. V. M. A. Dr. C. A. Cary discussed the arrangements for entertainment of the A. V. M. A. at New Orleans in October. He stated that Louisiana had appointed a local committee and suggested that each state in the South do its part in co-operation with the Louisiana committee. Upon motion a committee consisting of Drs. C. A. Cary, Tait Butler and Peter Bahnsen was appointed to aid in the co-operation of the southern states with the Louisiana committee. The Mississippi association reported that it had recently voted $100.00 for the New Orleans meeting and would raise more by individual subscription if needed. Upon motion a subscription was started among the members of the Southeastern States Association which resulted in the raising of more than $200.00.

The necrology committee reported the following deaths: Dr. T. B. Carroll, Wilmington, N. C.; Dr. J. F. Foley, Kinston, N. C.; Dr. T. D. Jackson, Talladega, Ala., charter members, and Dr. S. G. Carter, Roanoke, Ala.

The resolutions adopted by the association included expressions of appreciation for services and hospitality shown by the local veterinarians, the Birmingham Rotary Club and the management of the steel plant at Ensley; also an expression of indebtedness to visiting veterinarians coming from a distance and adding so much to the interest and usefulness of our program; condemning the general distribution of tuberculin and mallein which should be placed only in the hands of qualified and legally recognized veterinarians; one relating to the B. A. I. employes as follows:

Whereas, The veterinarians employed by the U. S. Bureau of Animal Industry are rendering conspicuous and invaluable service in affording protection to public health by an efficient inspection of meat and meat food products, and in the protection rendered the live stock industry by the control and eradication of animal diseases, and

Whereas, It is a notorious fact that these faithful public servants have never received just compensation for their services, and

Whereas, The present parsimonious salaries compel many of the most efficient to sever their connection with the Bureau thus threatening the service with demoralization.

Therefore, Be it resolved by the Southeastern States Veterinary Medical Association, that we endorse the Rainey amendment now pending before Congress which provides for increased compensation, and

Be it further resolved that the officers of this association are hereby instructed to urge the Secretary of Agriculture and all members of Congress representing these Southeastern States to actively support such measures as will secure just classification and adequate compensation for these worthy members of our profession.

The following were elected to honorary membership in the association: Drs. E. A. Cahill, J. S. Koen, R. C. Moore and Major R. M. Staley.

The association accepted the invitation to meet in Atlanta for its 1920 convention, the date to be fixed by the executive committee.

An interesting and well attended clinic was provided for the morning of the last day by Drs. Jackson, Piatt and French. The following demonstrations were given: The technique of cryptorchid castration in the horse, by Dr. William Bell; chloral hydrate (intraperitoneally) anesthesia in the mule, by Dr. R. C. Moore; stomach lavage of mule, to be passed through nostril, by Dr. J. S. Andrade; intrapalpebral malleinization of the mule, by Major R. M. Staley; intradermal tuberculinization of cow, by Dr. G. A. Roberts; anti-rabic immunization of dog, by Dr. D. A. Piatt; intraperitoneal injection of anti-hog cholera serum of hog, by Dr. G. R. White.

G. A. ROBERTS, *Secretary.*